# ASUS P535 Level 3 & Level 4 Repair Manual

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# 1. Purpose :

This document is provided for service team debugging RF part in P535.

# 2. Scope :

HW/RF/GSM

# 3. Facilities Requirement :

## 3.1 Software :

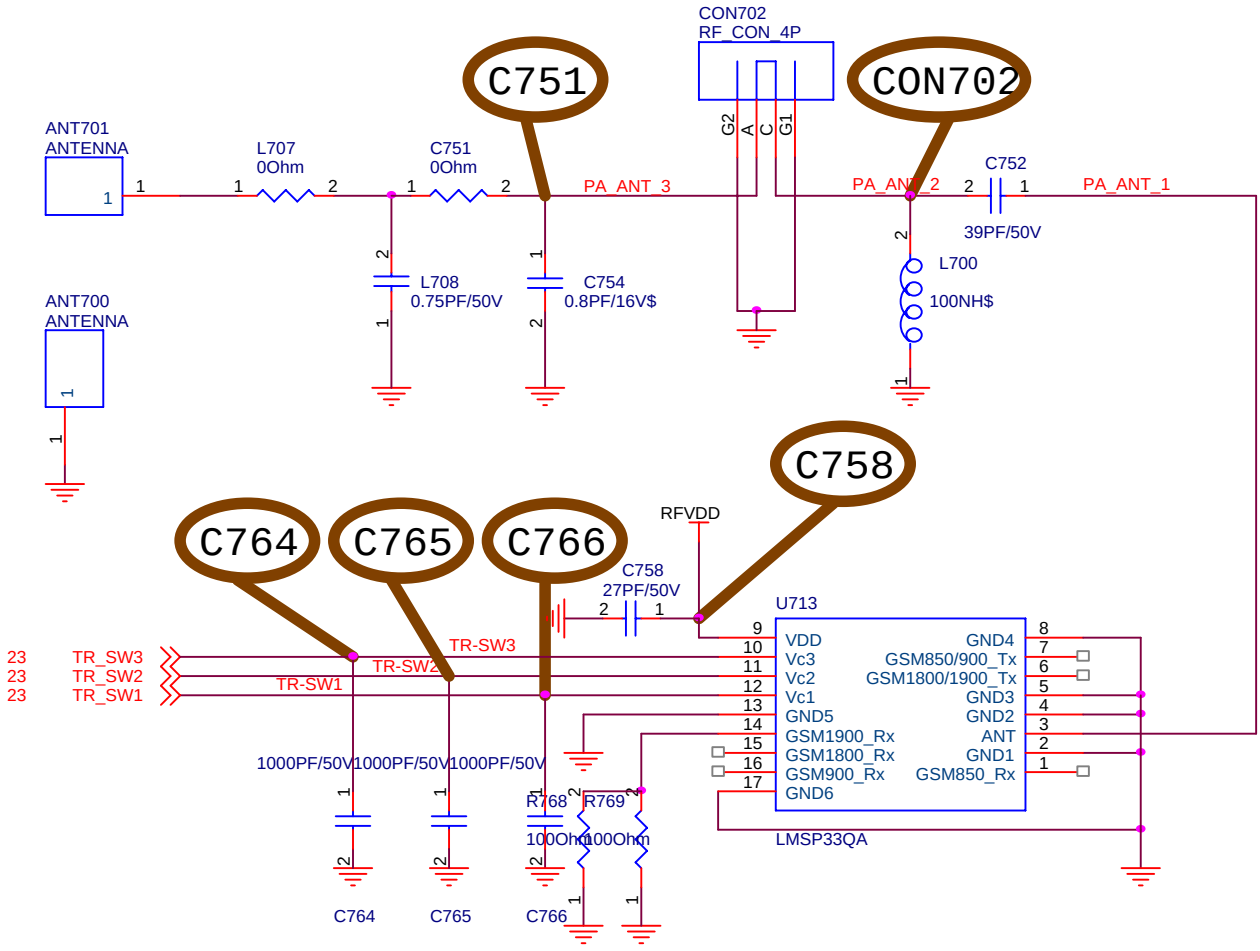
Phone Tool
Modem Firmware：Latest Version
Calibration File: .ini

## 3.2 Hardware :

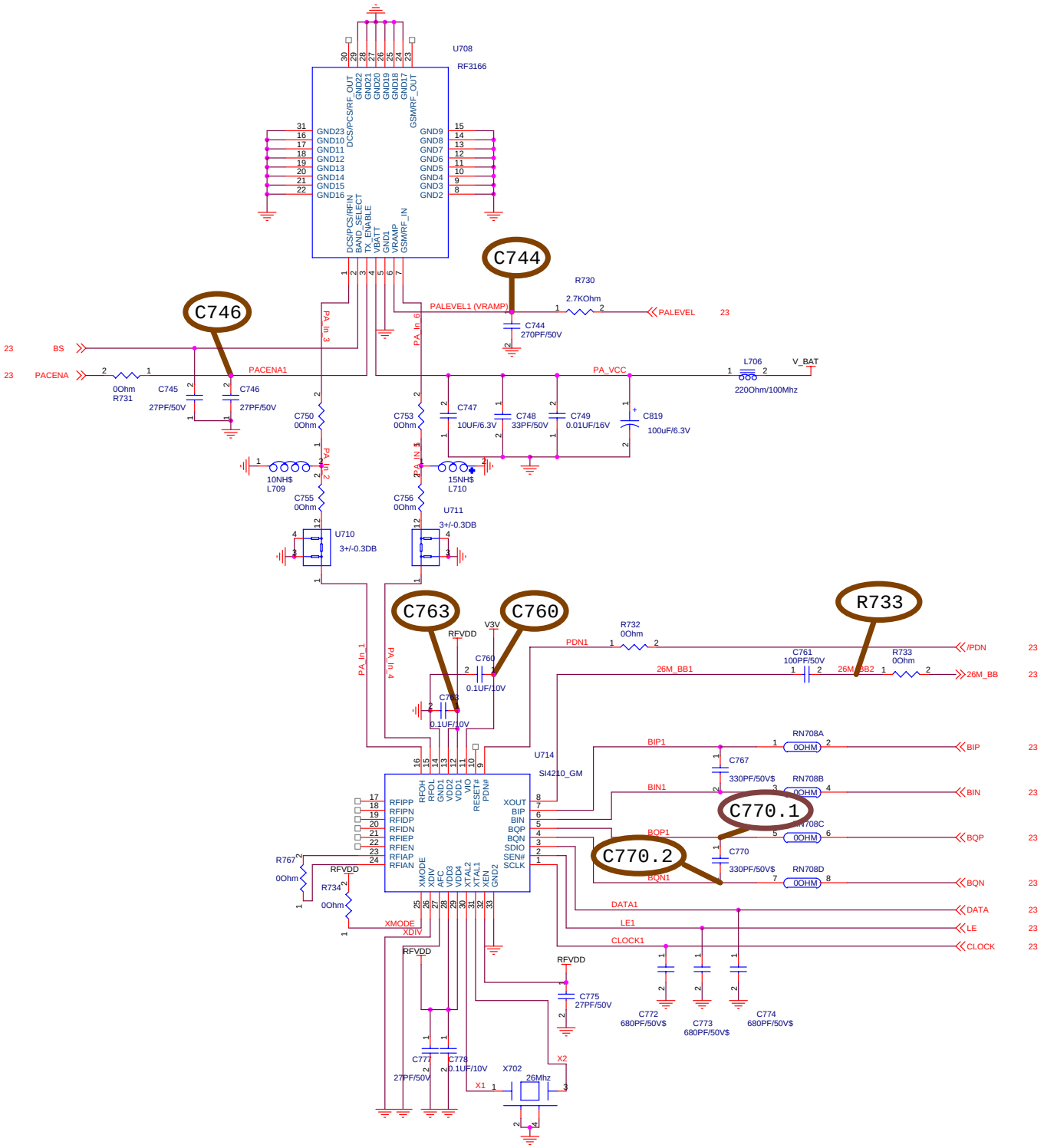
Test Fixture
Oscilloscope
Agilent 8960

# 4.Test points Overview :

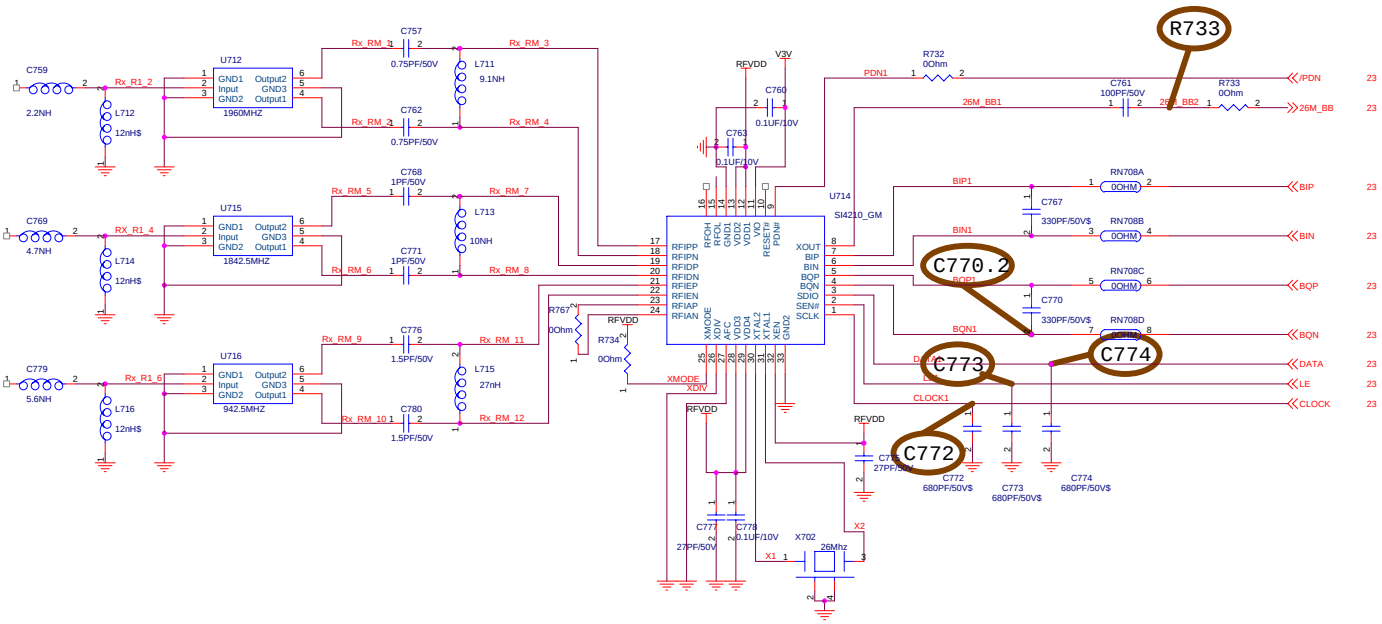
## 4.1 Front-End Part



## 4.2 TX Part

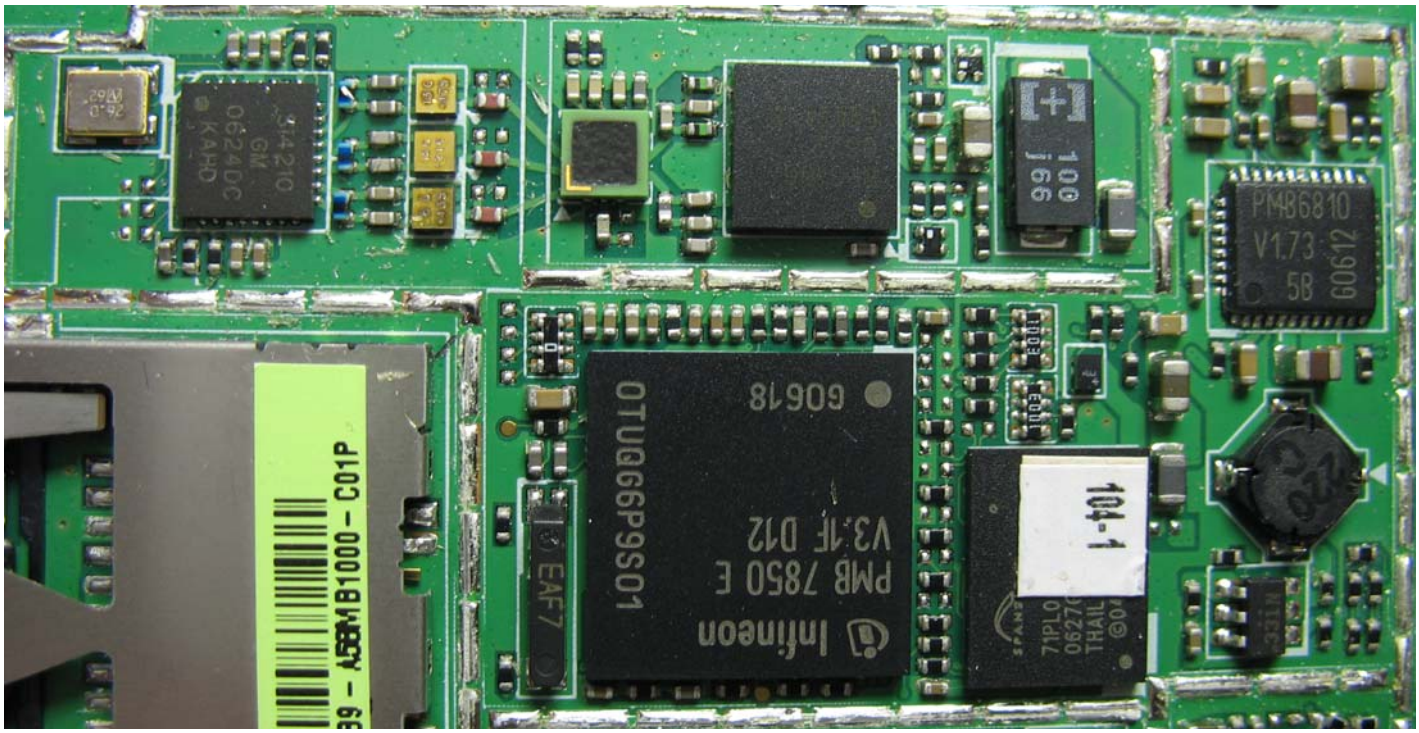

U708
RF3166
C744
C746
C763
C760
R733
C770.1
C770.2
U710
3+/-0.3DB
U711
3+/-0.3DB
U714
SI4210_GM
X702
26Mhz
PALEVEL1 (VRAMP)
PACENA1
PA_VCC
PA_IN_1
PA_IN_2
PA_IN_3
PA_IN_4
PA_IN_5
PA_IN_6
RFVDD
V3V
PDN1
BIP1
BIN1
BQP1
BQN1
DATA1
LE1
CLOCK1
XMODE
XDIV
BS
PACENA
PALEVEL
V_BAT
/PDN
26M_BB
BIP
BIN
BQP
BQN
DATA
LE
CLOCK

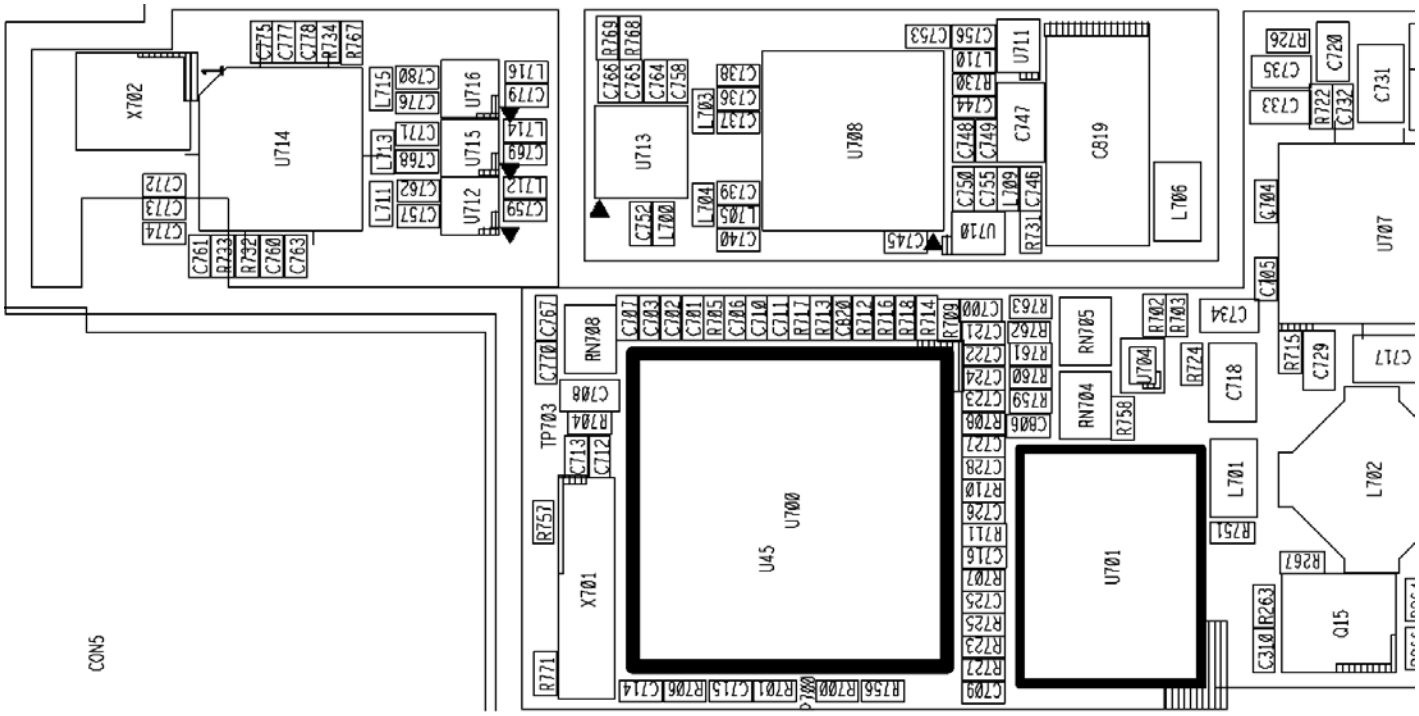
# 4.3 RX Part


R733
C770.2
C773
C774
C772
U712
U715
U716
U714
SI4210_GM
1960MHZ
1842.5MHZ
942.5MHZ
26Mhz
X702
RFVDD
V3V
XMODE
XDIV
CLOCK1
/PDN
26M_BB
BIP
BIN
BQP
BQN
DATA
LE
CLOCK

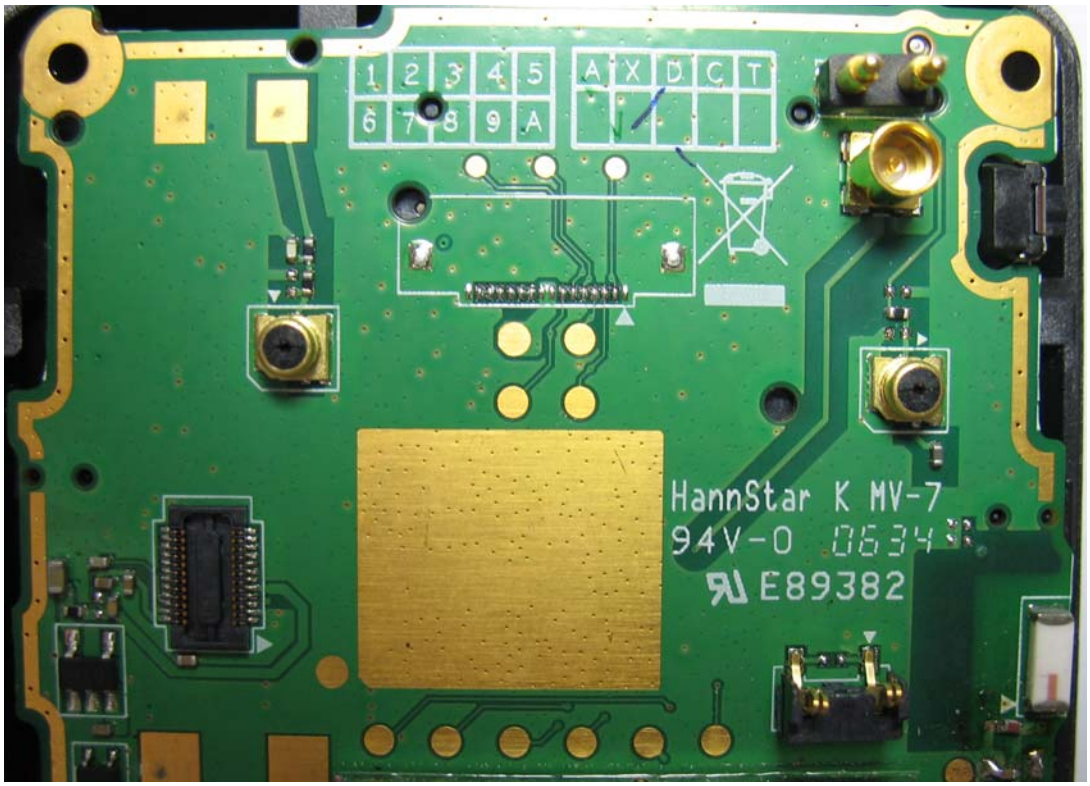
# 5.Component Locations :

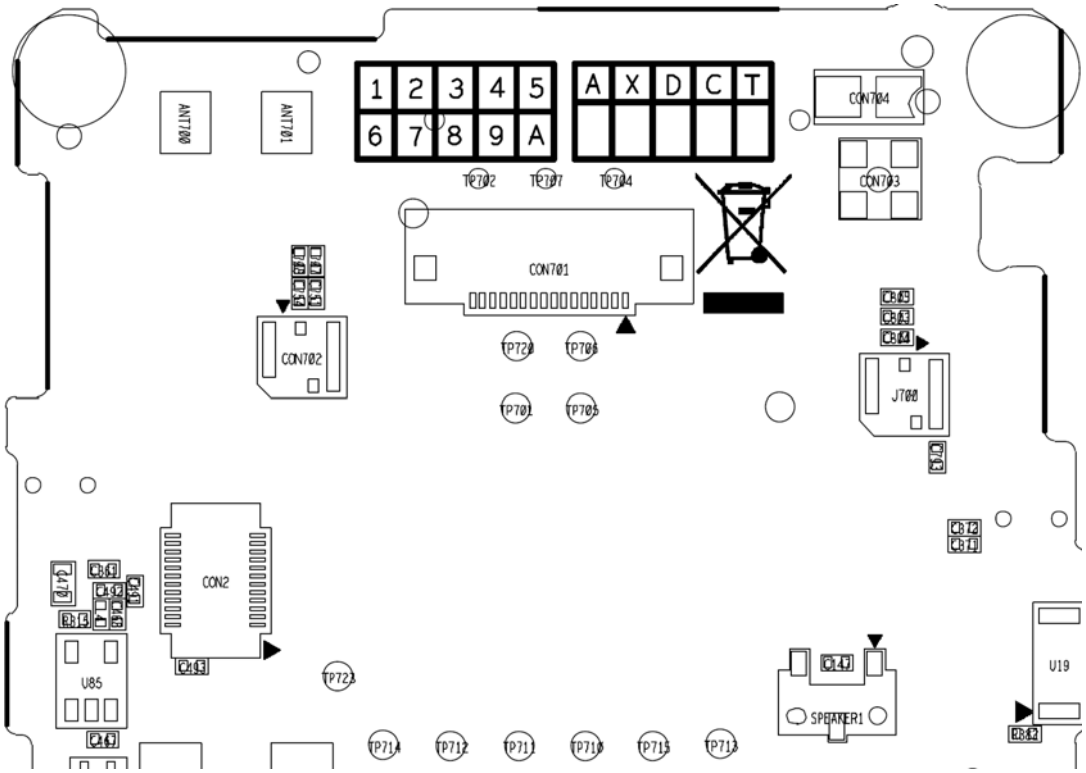
## 5.1 Top Side



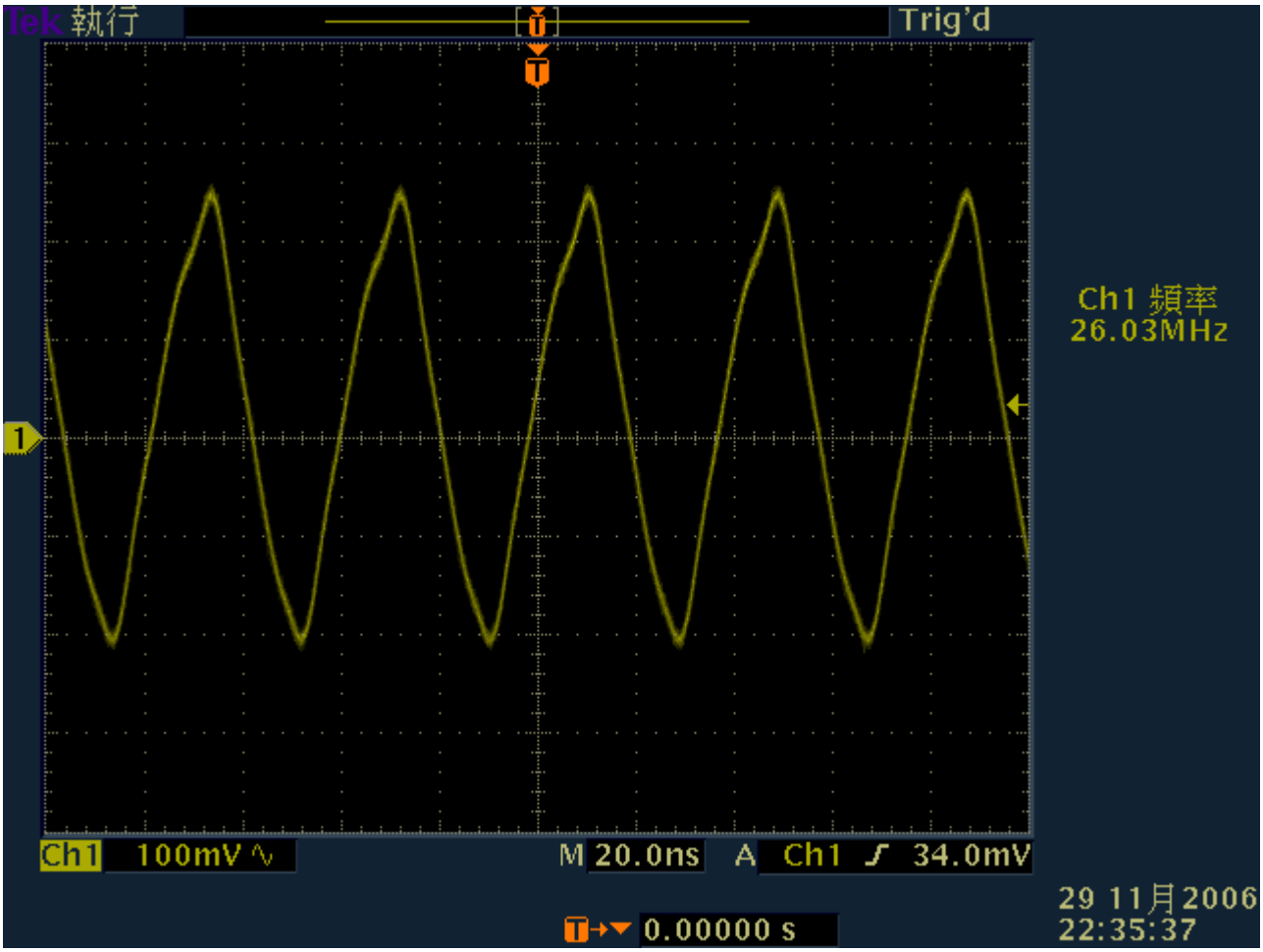
## 5.2 Bottom Side



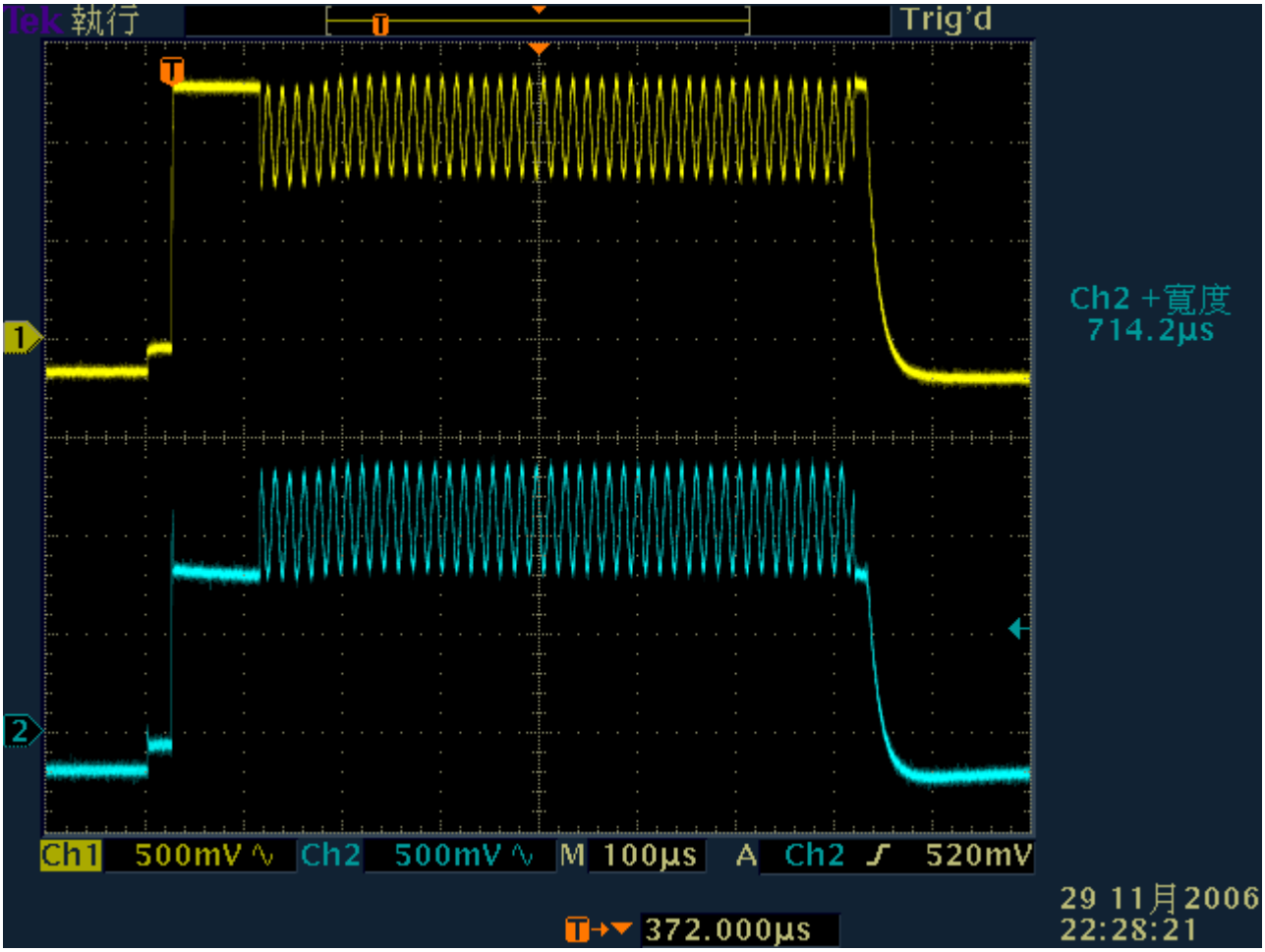



# 6.Testing Graphs about Test-Points

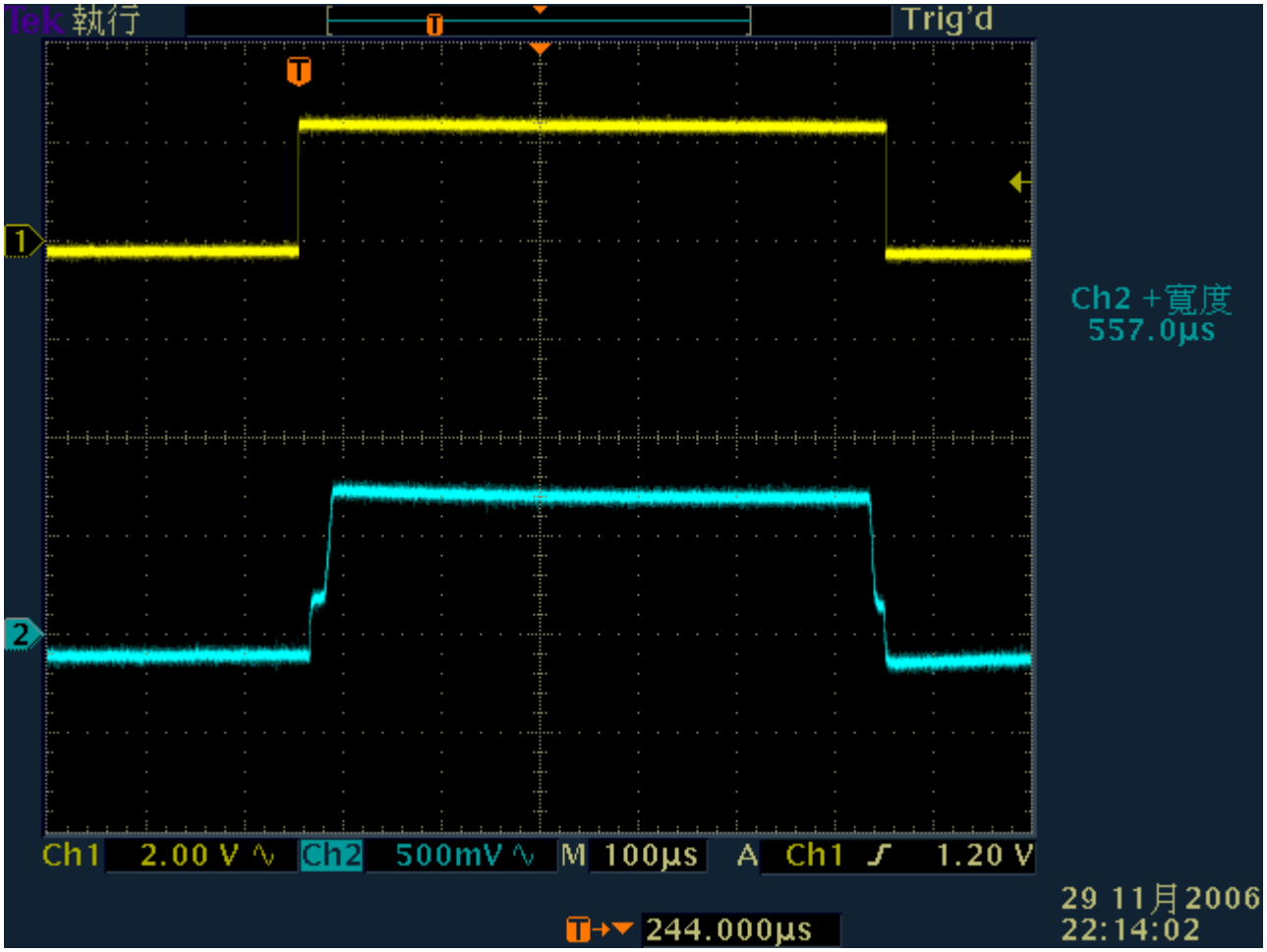
R733.Pin1



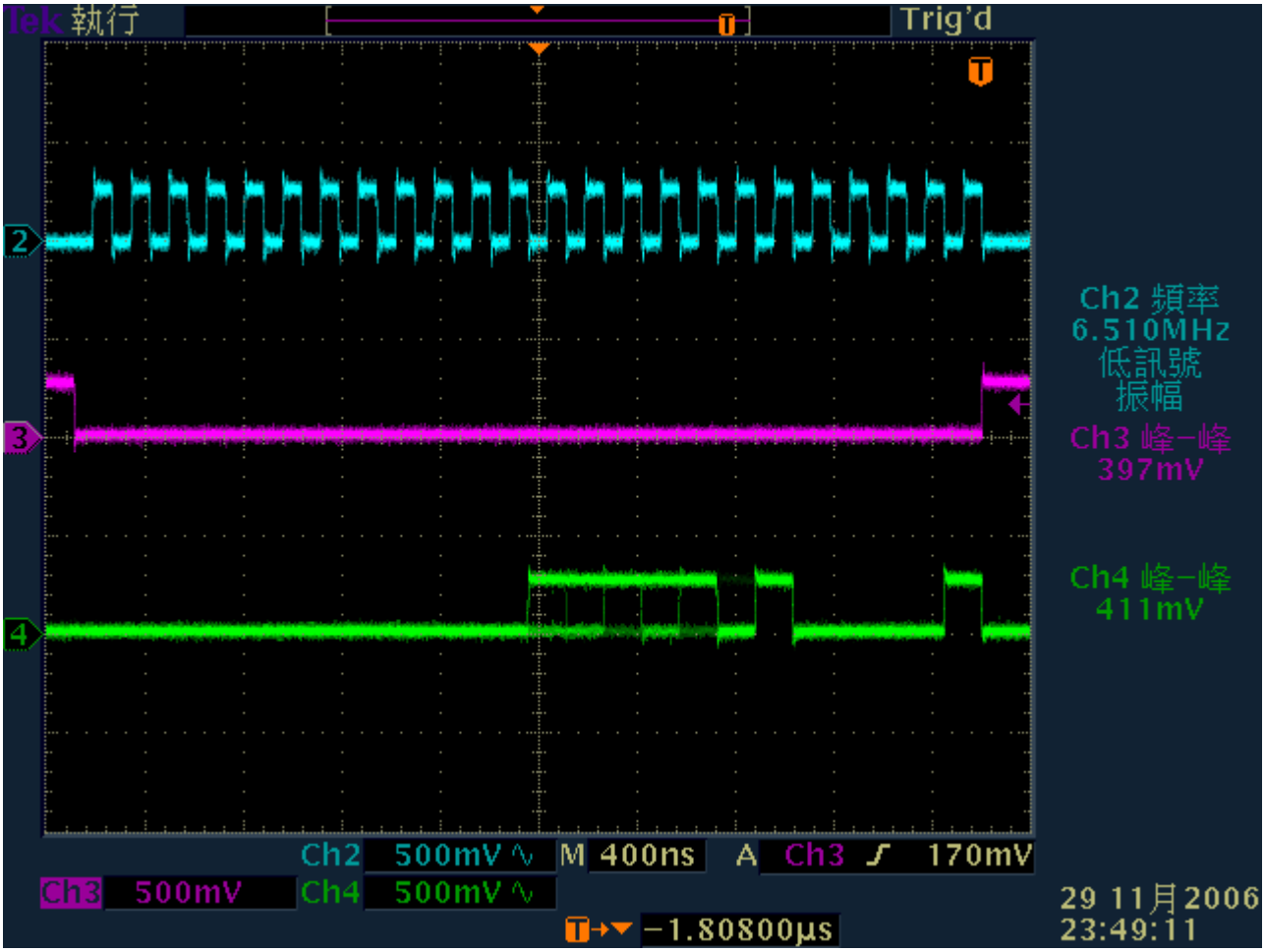
# C770.Pin1/Pin2



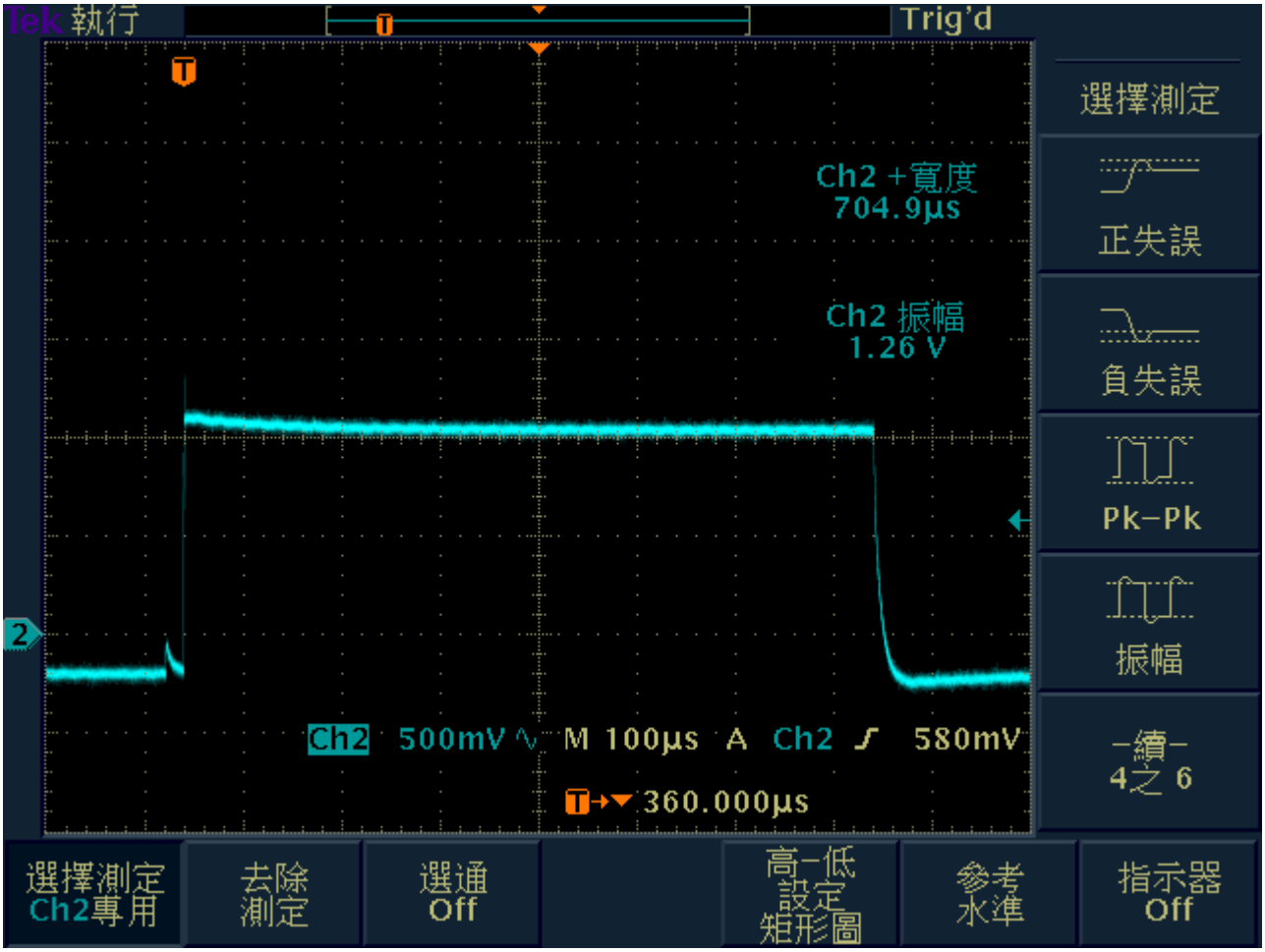
# C746.Pin2/C744.Pin1



# C772.Pin1/C773.Pin1/C774.Pin1

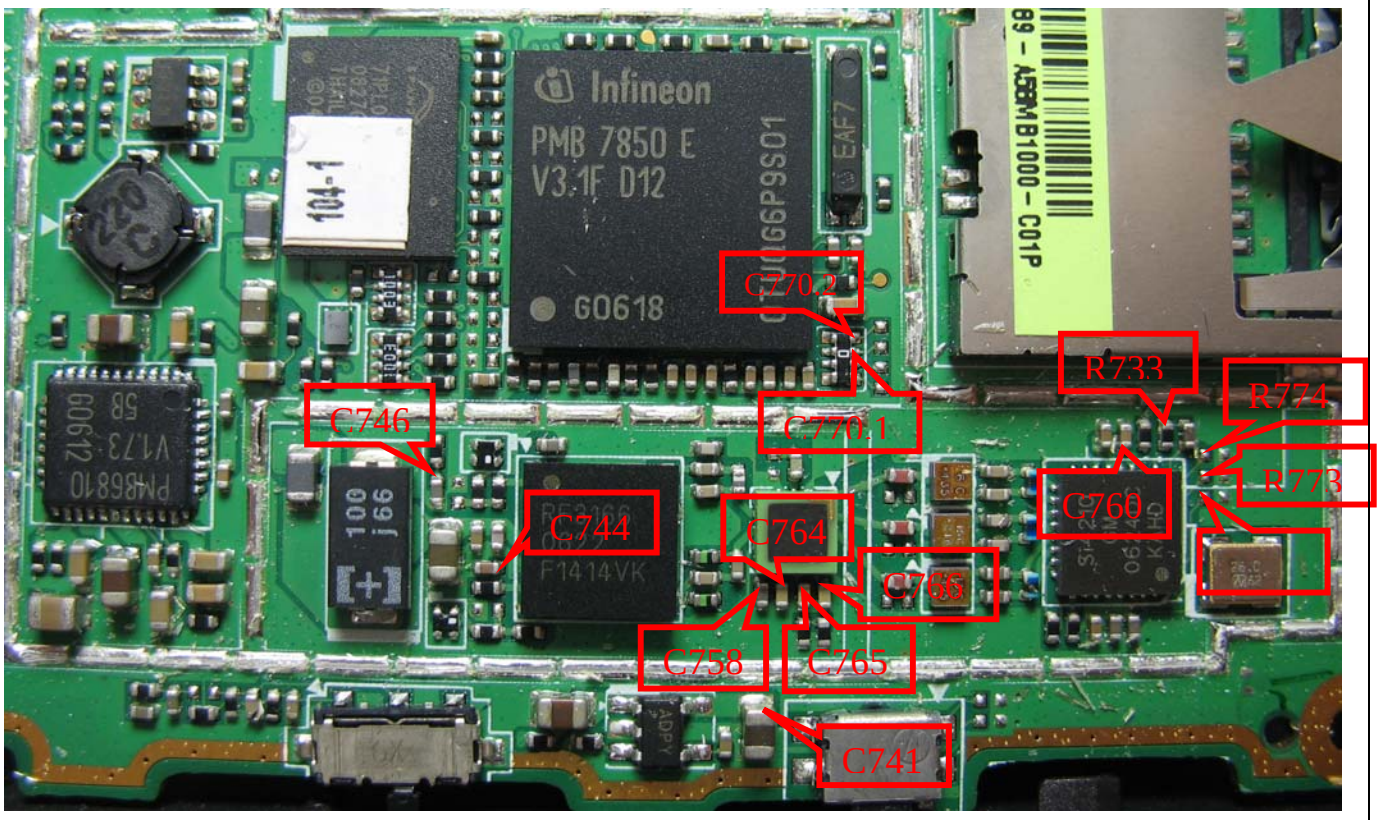


# C770.Pin2

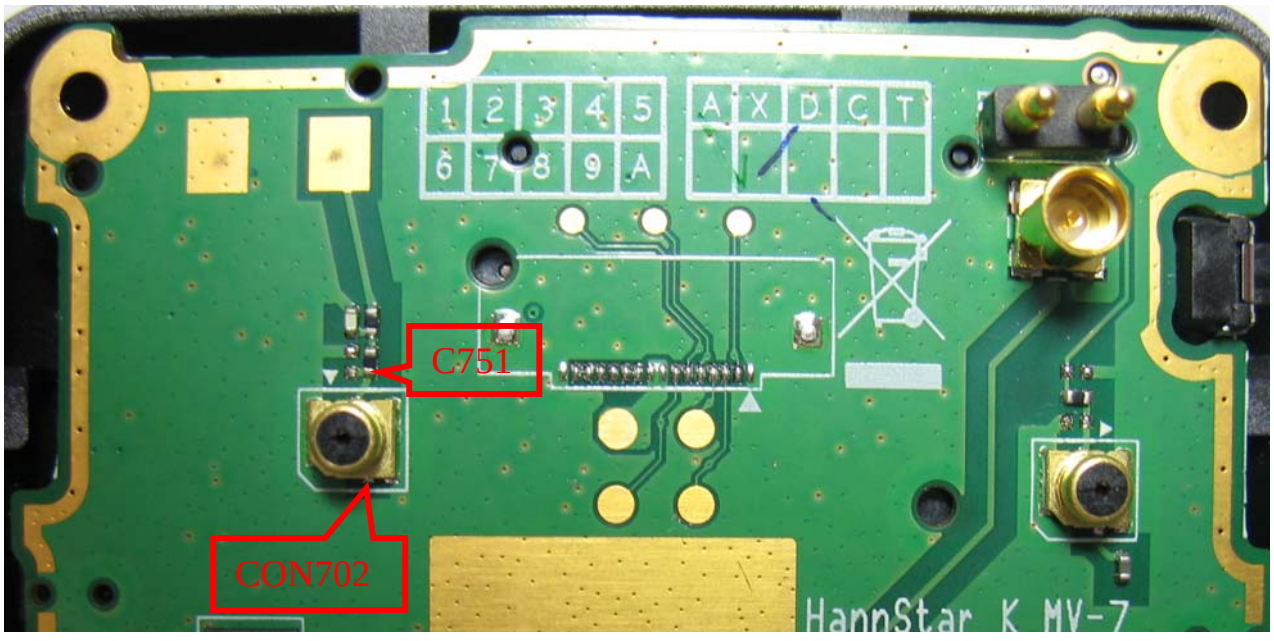

Tek 執行
Trig'd
Ch2 +寬度
704.9µs
Ch2 振幅
1.26 V
Ch2 500mV
M 100µs A Ch2 580mV
360.000µs
選擇測定
正失誤
負失誤
Pk-Pk
振幅
-續-
4之 6
選擇測定
Ch2專用
去除
測定
選通
Off
高-低
設定
矩形圖
參考
水準
指示器
Off

# 7. Locations about test-points of components

## TOP Side



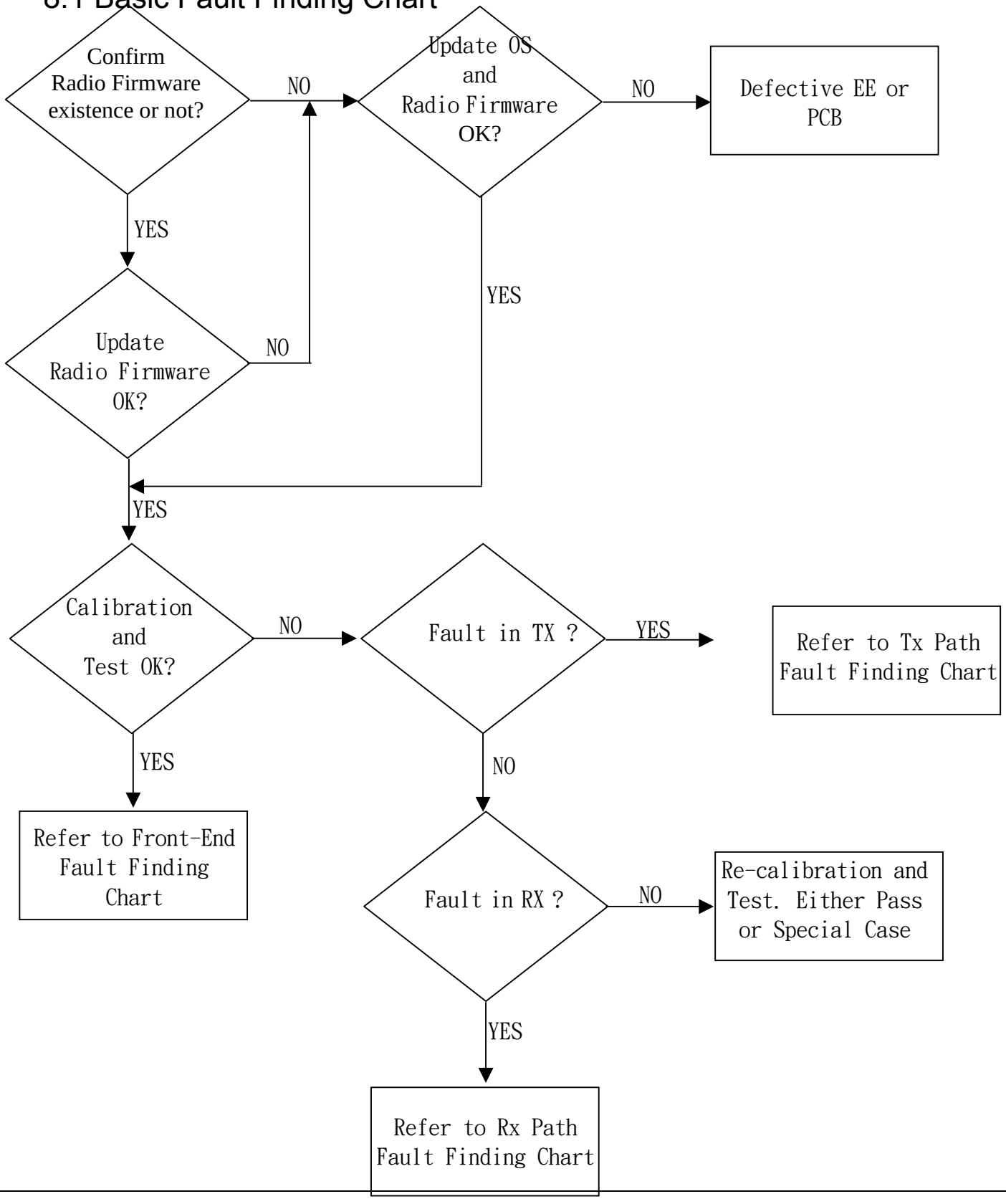

## Bottom Side



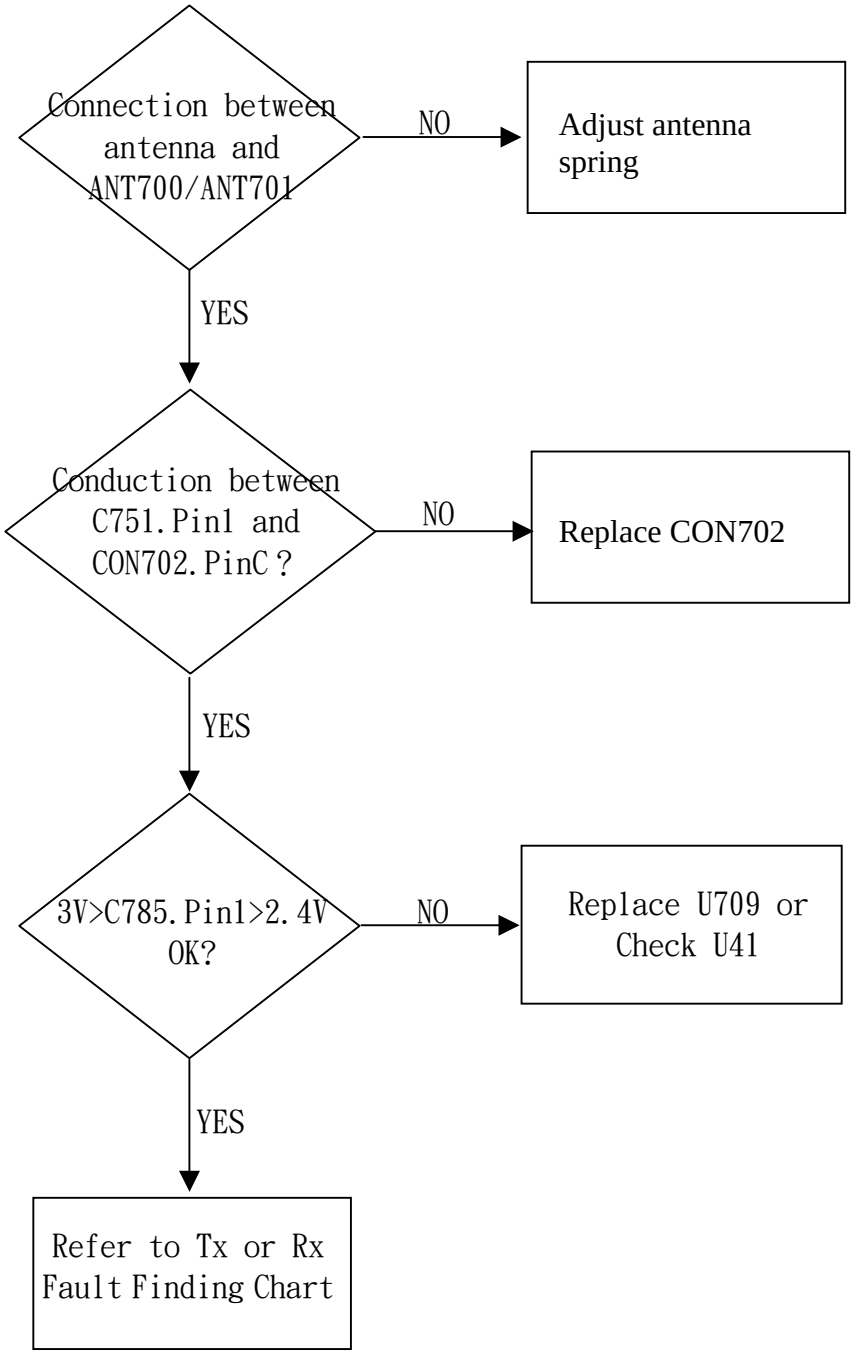
# 8.Debug Flow

GPRS check is divided into 5 steps, and each step depends on PhoneTool. No matter what has been done, it needs to make phone return Normal Mode and finish RF Calibration and Test. After that, it is considered as an accomplished check.

## 8.1 Basic Fault Finding Chart



## 8.2 Front-End Fault Finding Chart

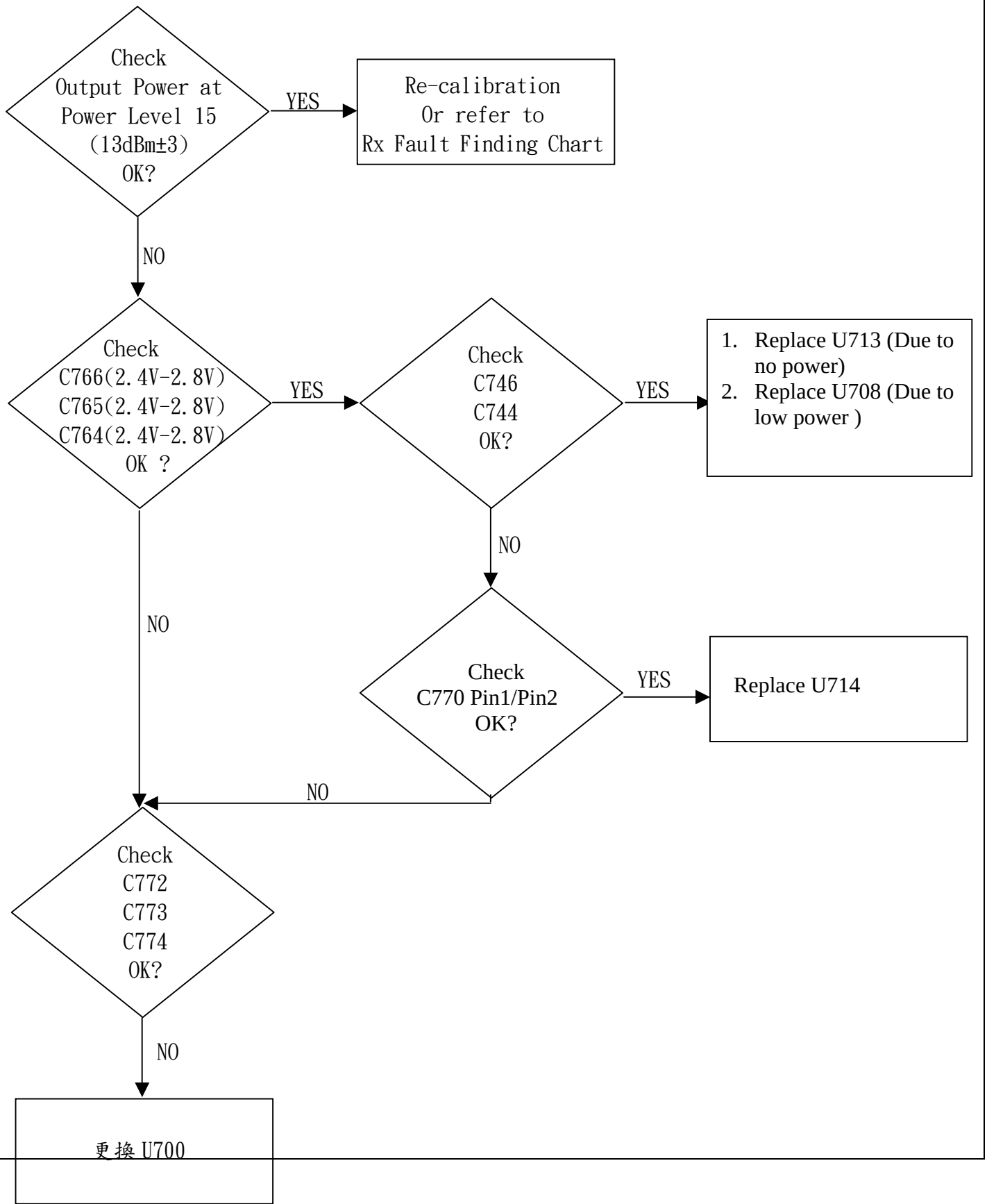


## 8.3 Tx Fault Finding Chart

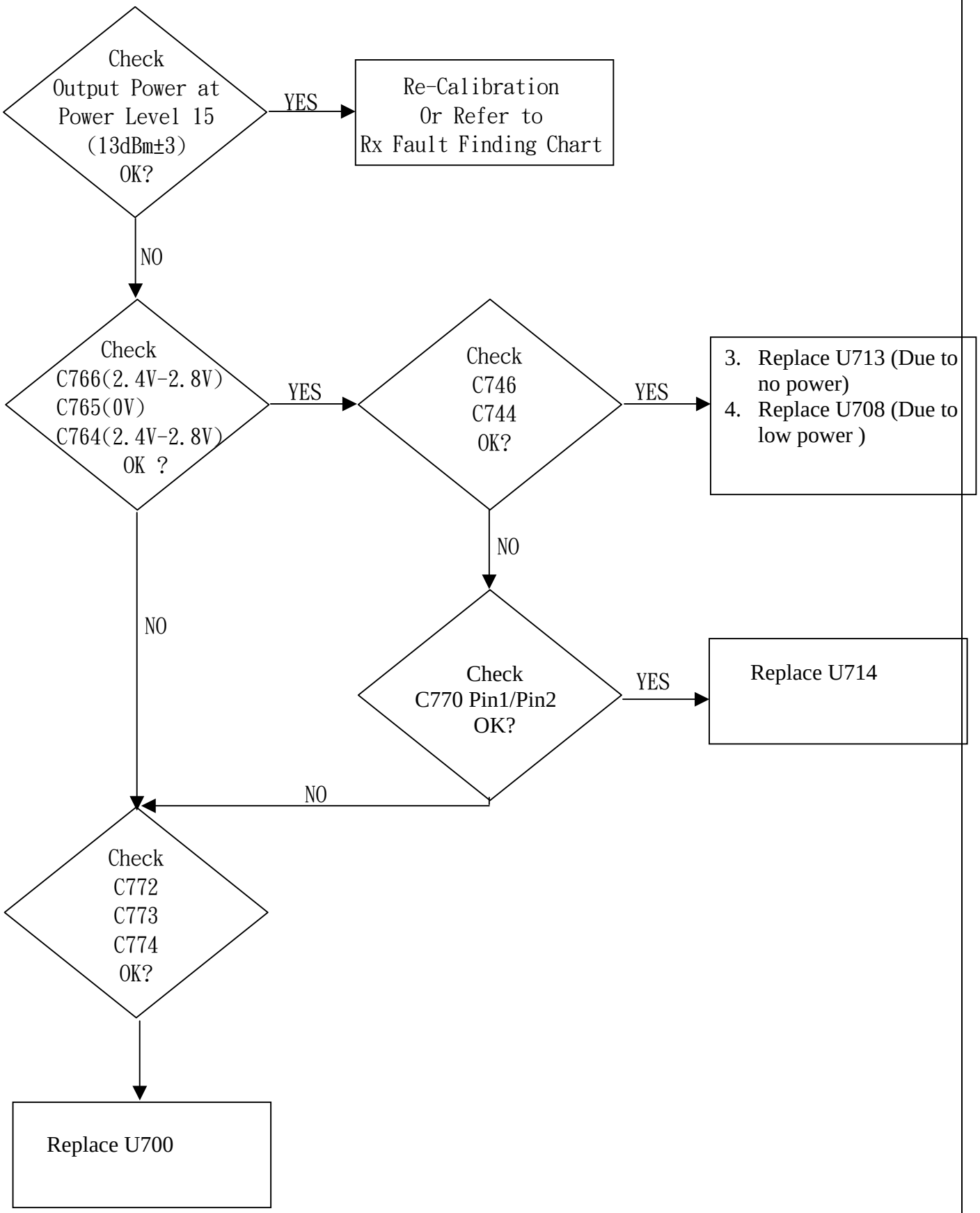
### 8.3.1 EGSM900

Please complete following items in advance before carrying out this step:

1. Basic Fault Finding Chart.
2. Front-End Fault Finding Chart.

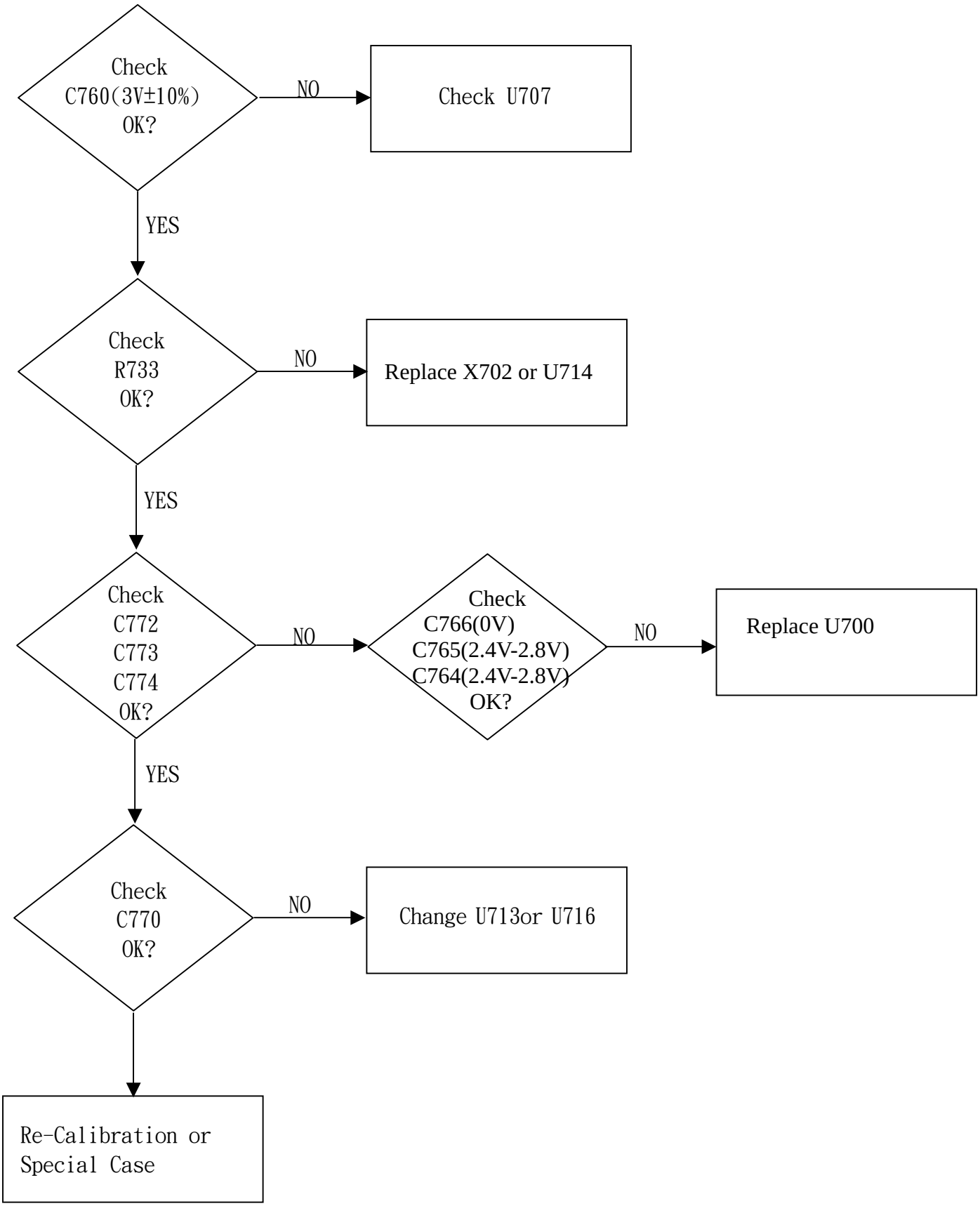


### 8.3.2 DCS1800/PCS1900

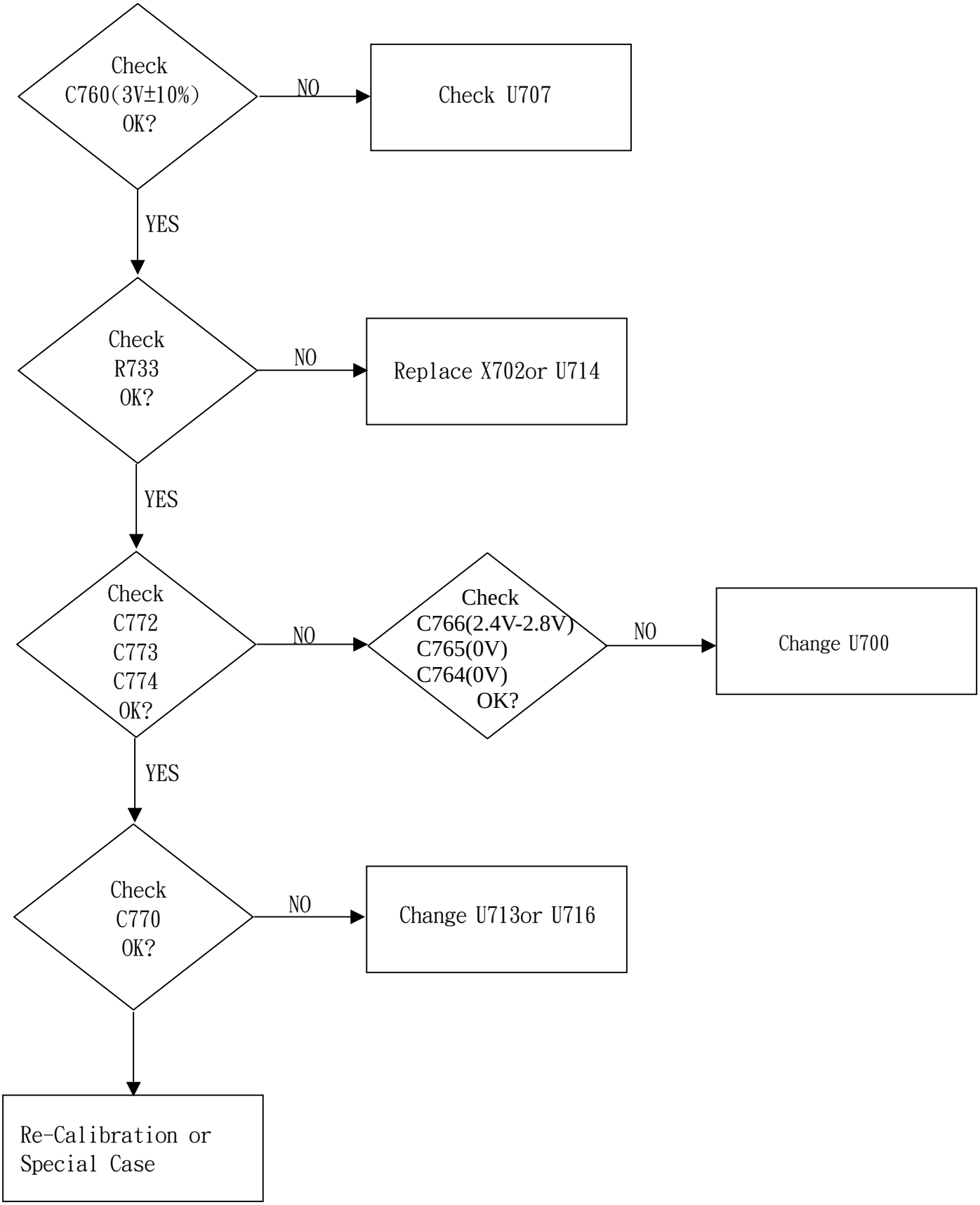


## 8.4 Rx Fault Finding Chart

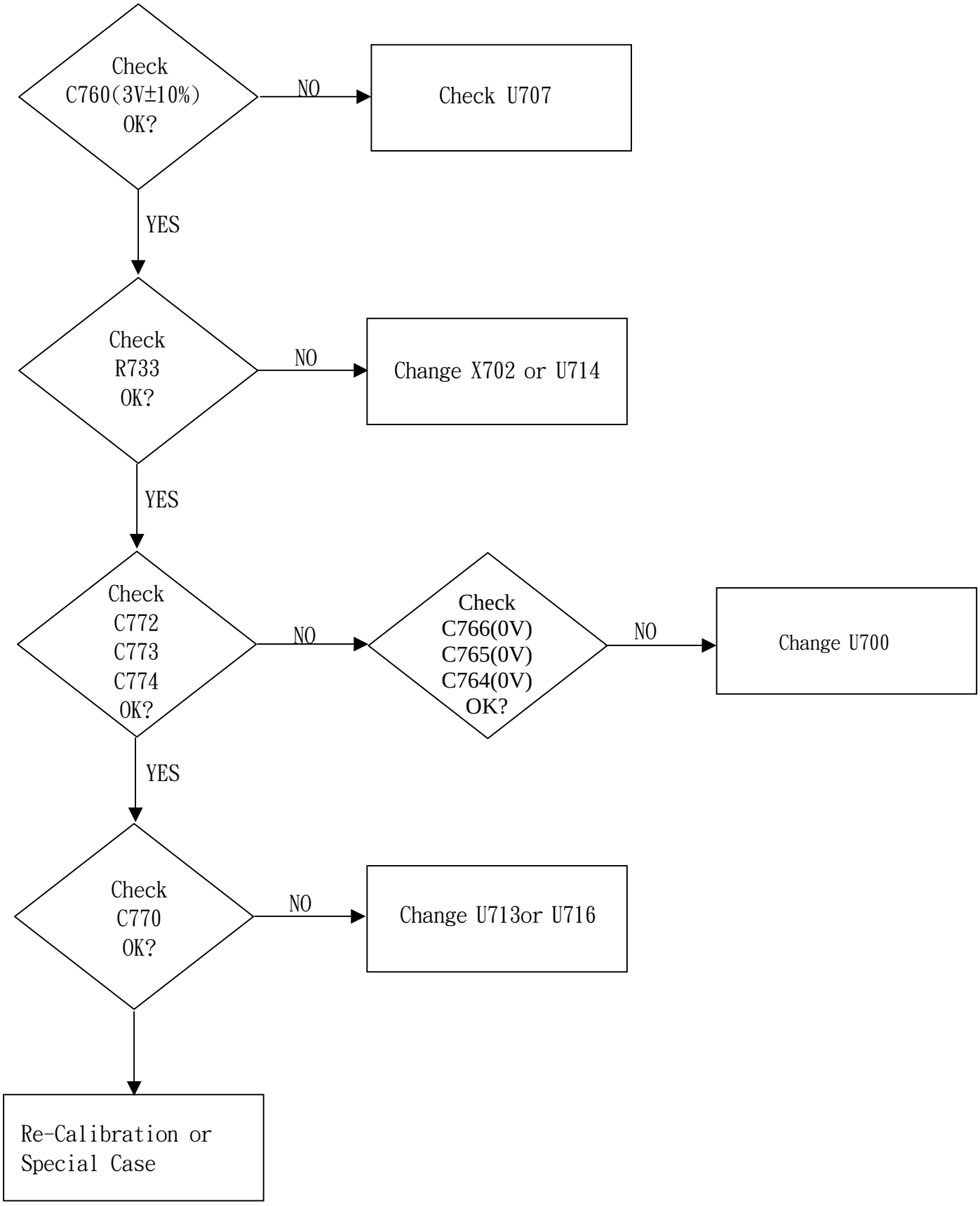
### 8.4.1 EGSM900



### 8.4.2 DCS1800


Check
C760(3V±10%)
OK?
NO
Check U707
YES
Check
R733
OK?
NO
Replace X702or U714
YES
Check
C772
C773
C774
OK?
NO
Check
C766(2.4V-2.8V)
C765(0V)
C764(0V)
OK?
NO
Change U700
YES
Check
C770
OK?
NO
Change U713or U716
Re-Calibration or
Special Case

### 8.4.3 PCS1900

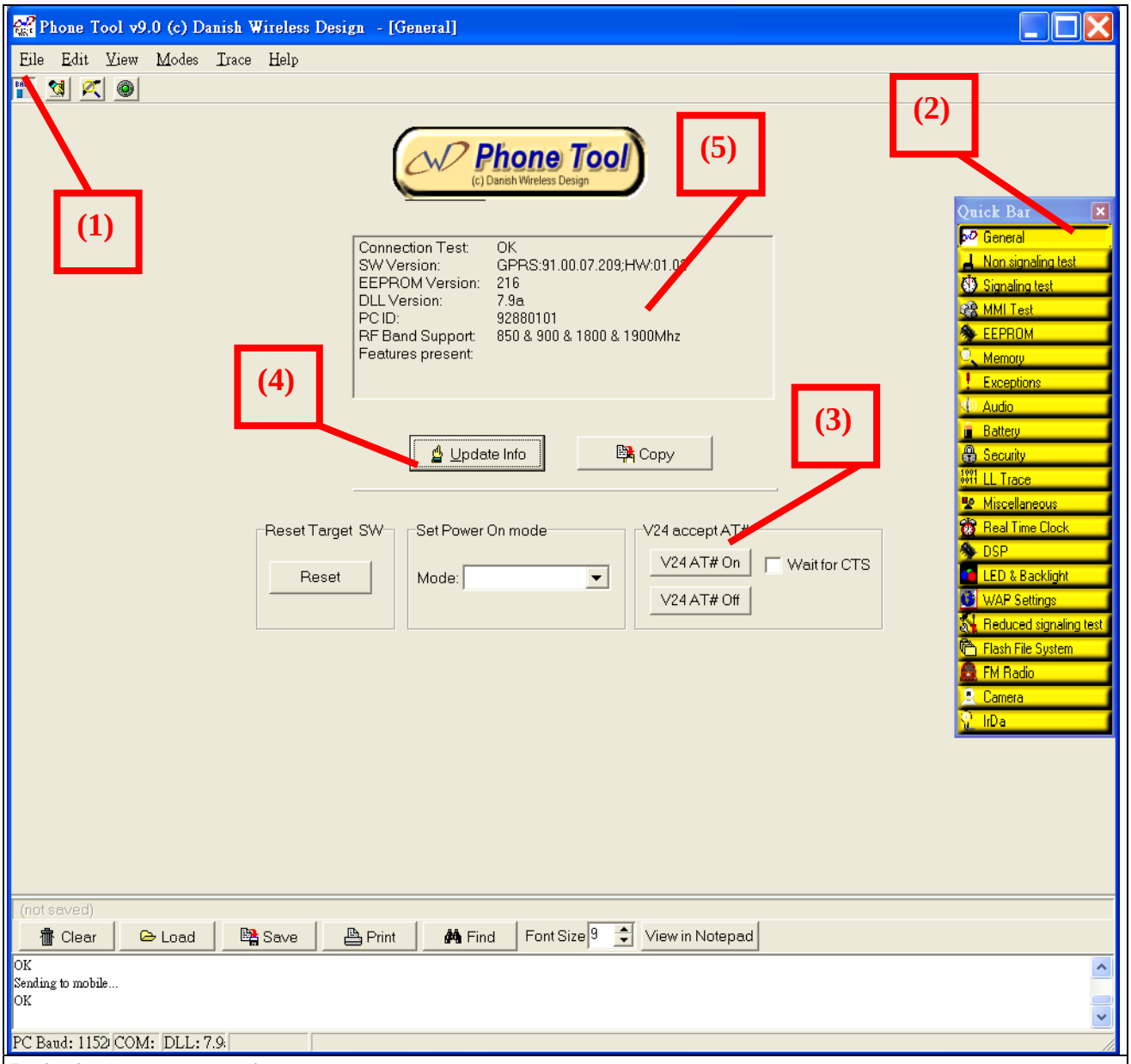

Check
C760(3V±10%)
OK?
NO
Check U707
YES
Check
R733
OK?
NO
Change X702 or U714
YES
Check
C772
C773
C774
OK?
NO
Check
C766(0V)
C765(0V)
C764(0V)
OK?
NO
Change U700
YES
Check
C770
OK?
NO
Change U713or U716
Re-Calibration or
Special Case

## 8.5 Special Case:

1.
If signal strength on phone is not stable or phone is always re-searching base station signal, please replace X702.

2.
If signal strength on phone suddenly becomes zero after talking or receiving messages, please change U700.

# 9.Phone Tool Startup setting




Initial connection：

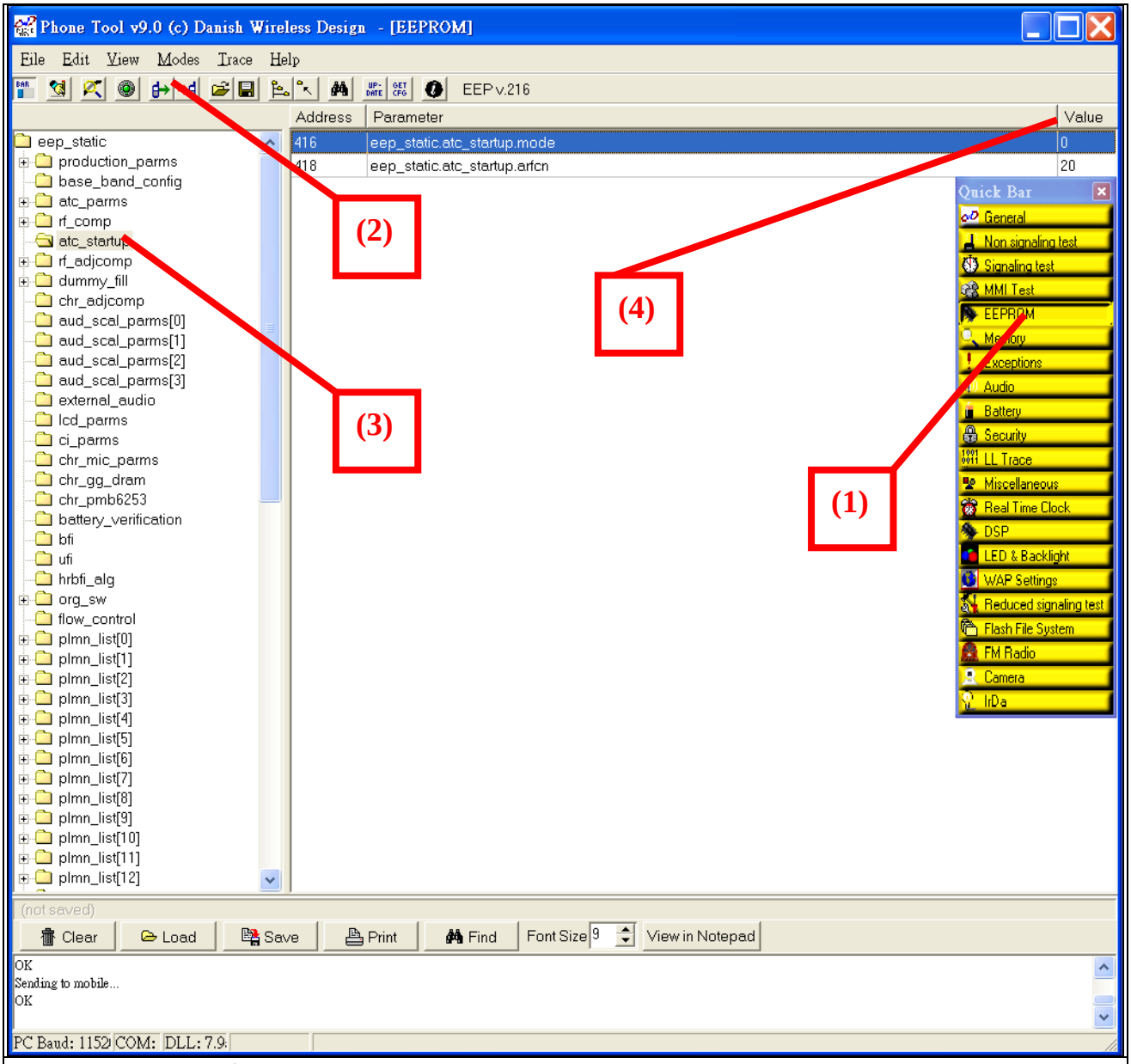
(1) Start ”Quick Bar”.

(2) Choose ”General” in “Quick Bar”.

(3) Start AT-Commands several times before updating information in case phone enters sleeping mode.

(4) Update Information。

(5) Modern-related information is showed after successful connection.




Get into Phone's test mode:

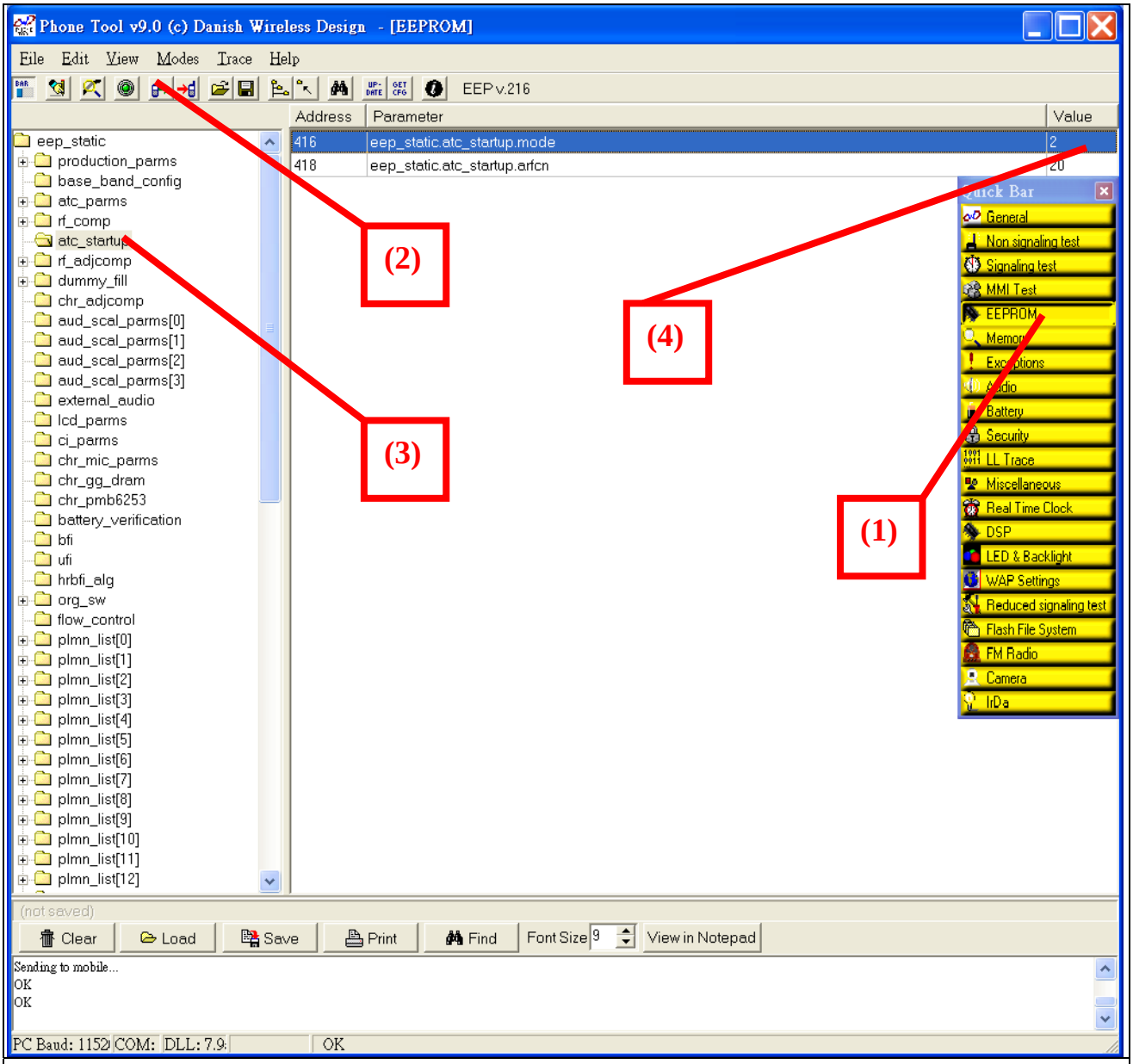
(1) Choose "EEPROM" in "Quicl Bar".

(2) Click " Read EEPROM from phone."

(3) Choose "eep_static"; Then find out "atc_startup", and click it.

(4) Change the value of "eep_static.atc_startup.mode" to " 0".

(5) Turn off phone, and re-turn on phone after one second. Then the phone is under test mode.




Get into phone's normal mode:

(1) Choose "EEPROM" in "Quicl Bar".

(2) Click "Read EEPROM from phone."

(3) Choose "eep_static"; Then find out "atc_startup", and click it

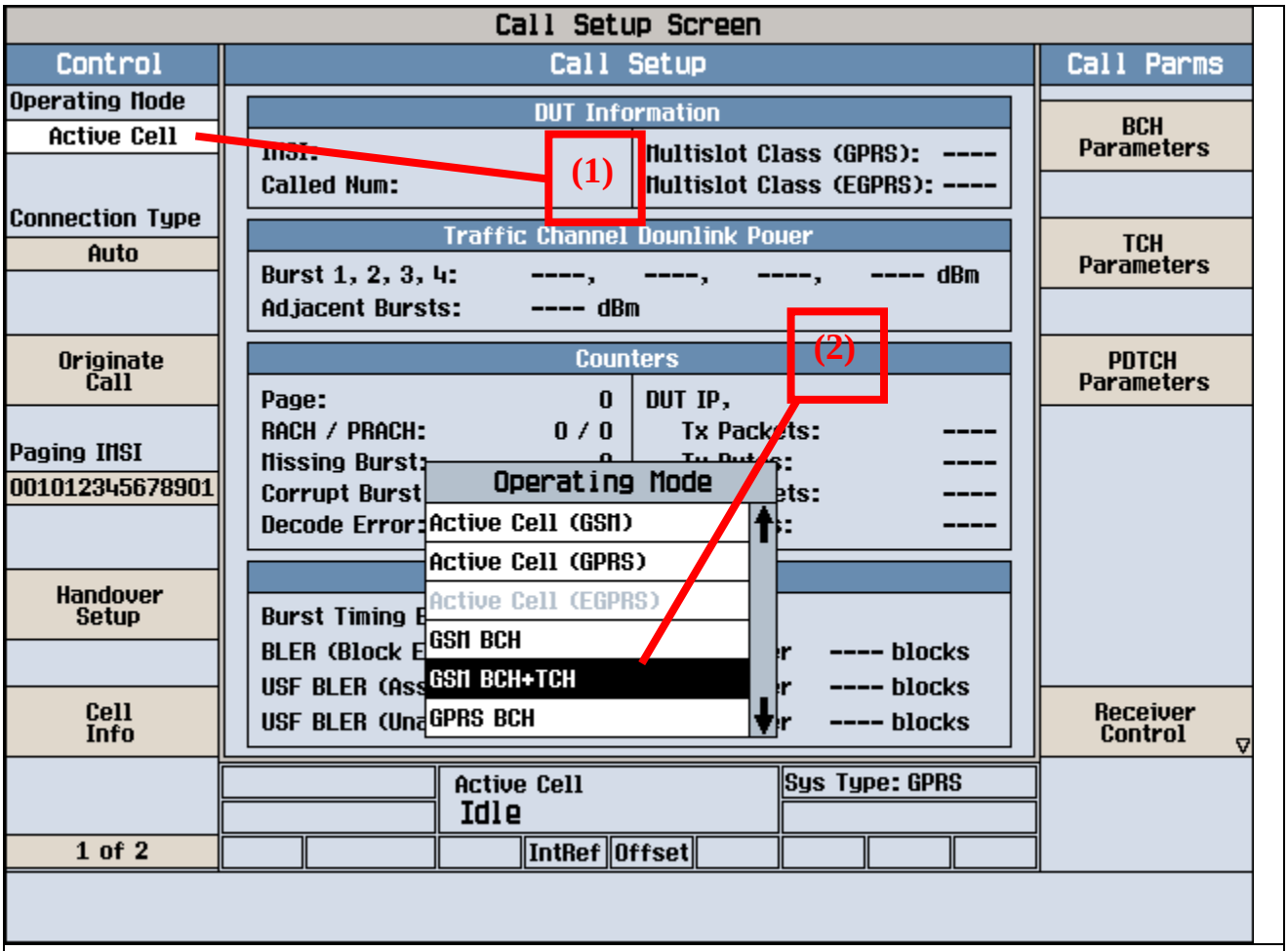
(4) Change the value of "eep_static.atc_startup.mode" to "2".

(5) Turn off phone, and re-turn on phone after one second. Then the phone is under normal mode.

PS: Every time after getting into phone's test-mode to do some debug, one should return phone into normal mode to make phone normal for users.

# 10. Tester Setting

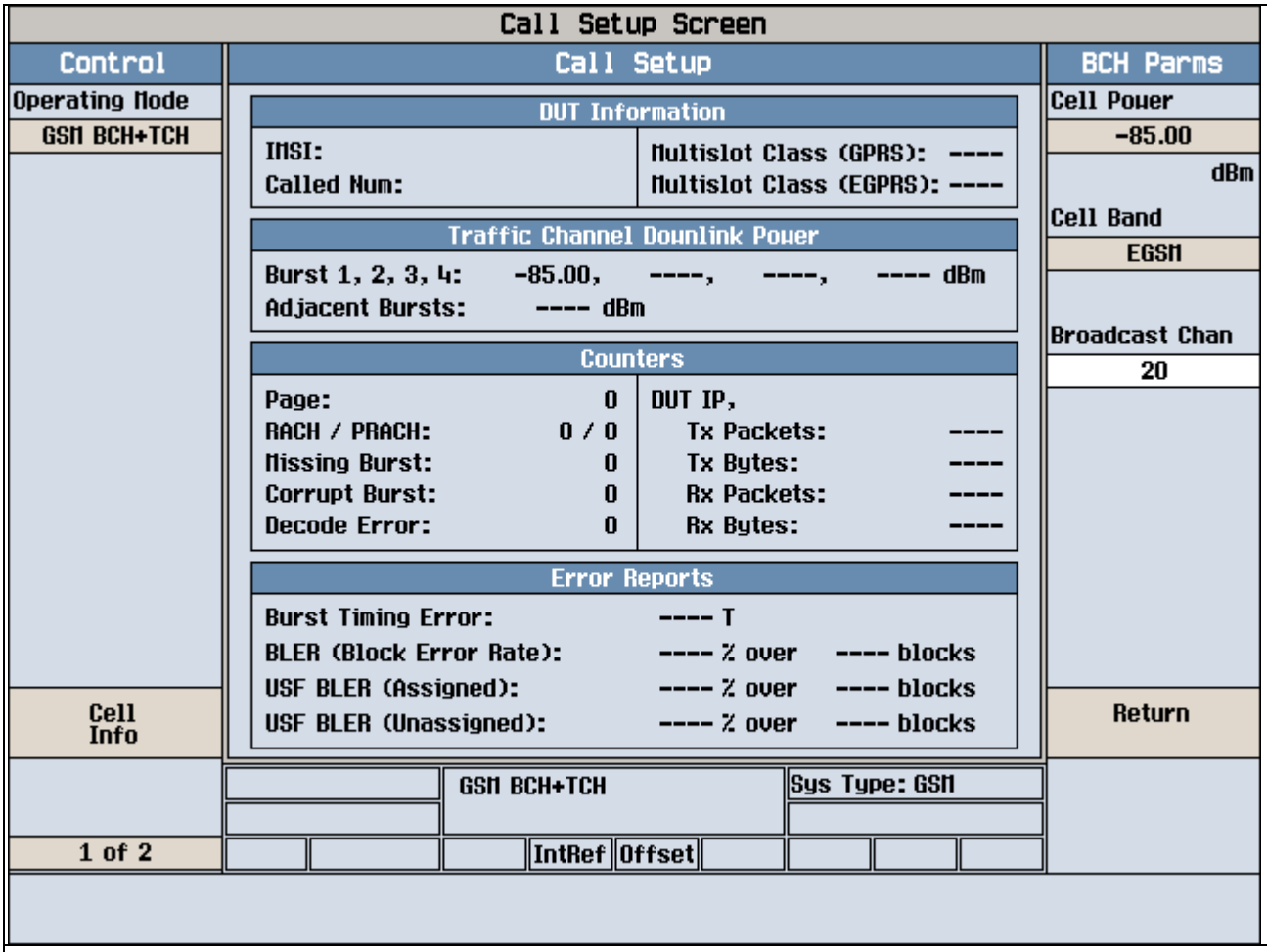
EGSM900 TX Setting (Non-Signaling)



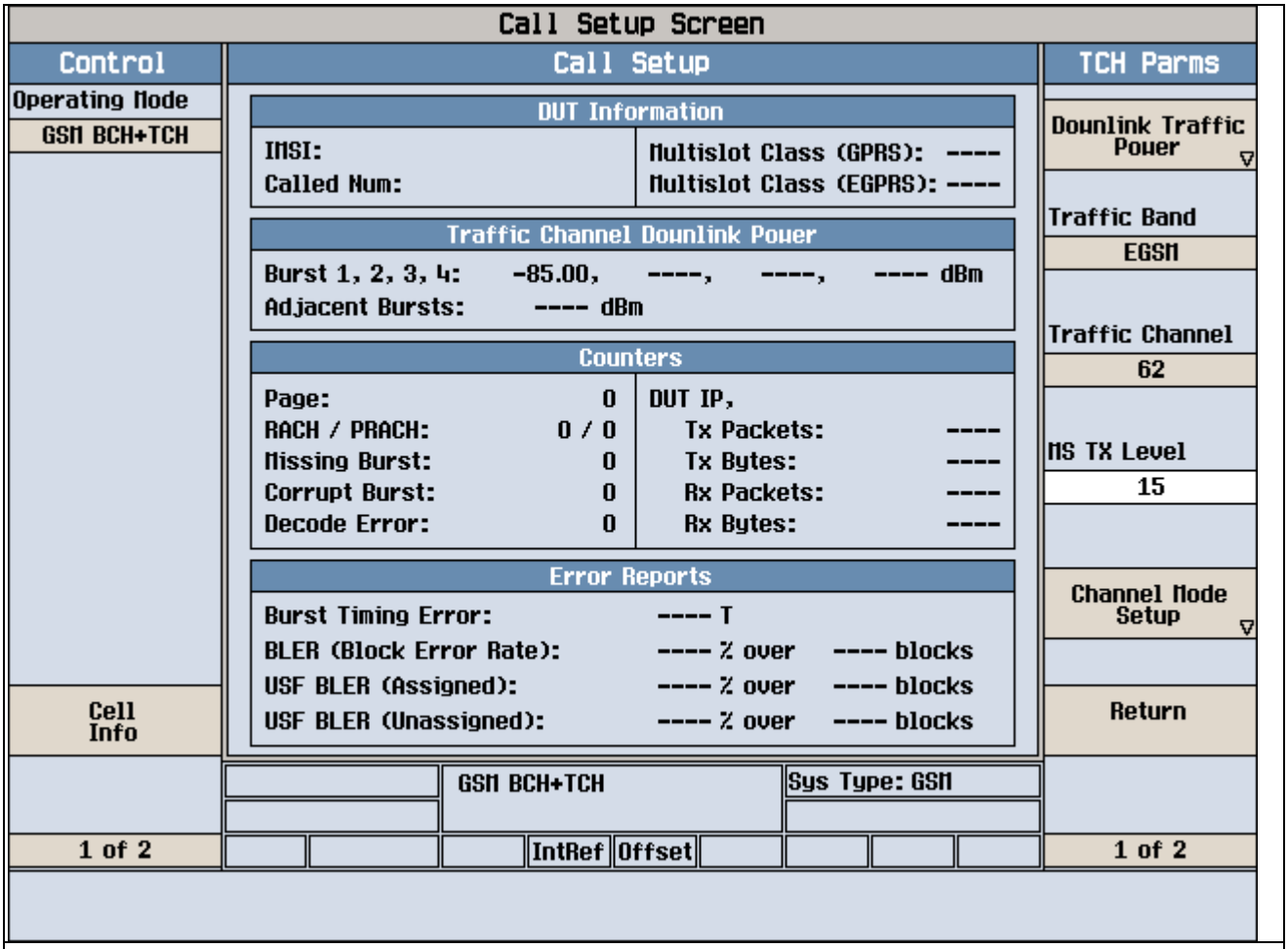

Get inot Non-Signaling mode of Agilent 8960

(1) Click Operation Mode on Agilent 8960.

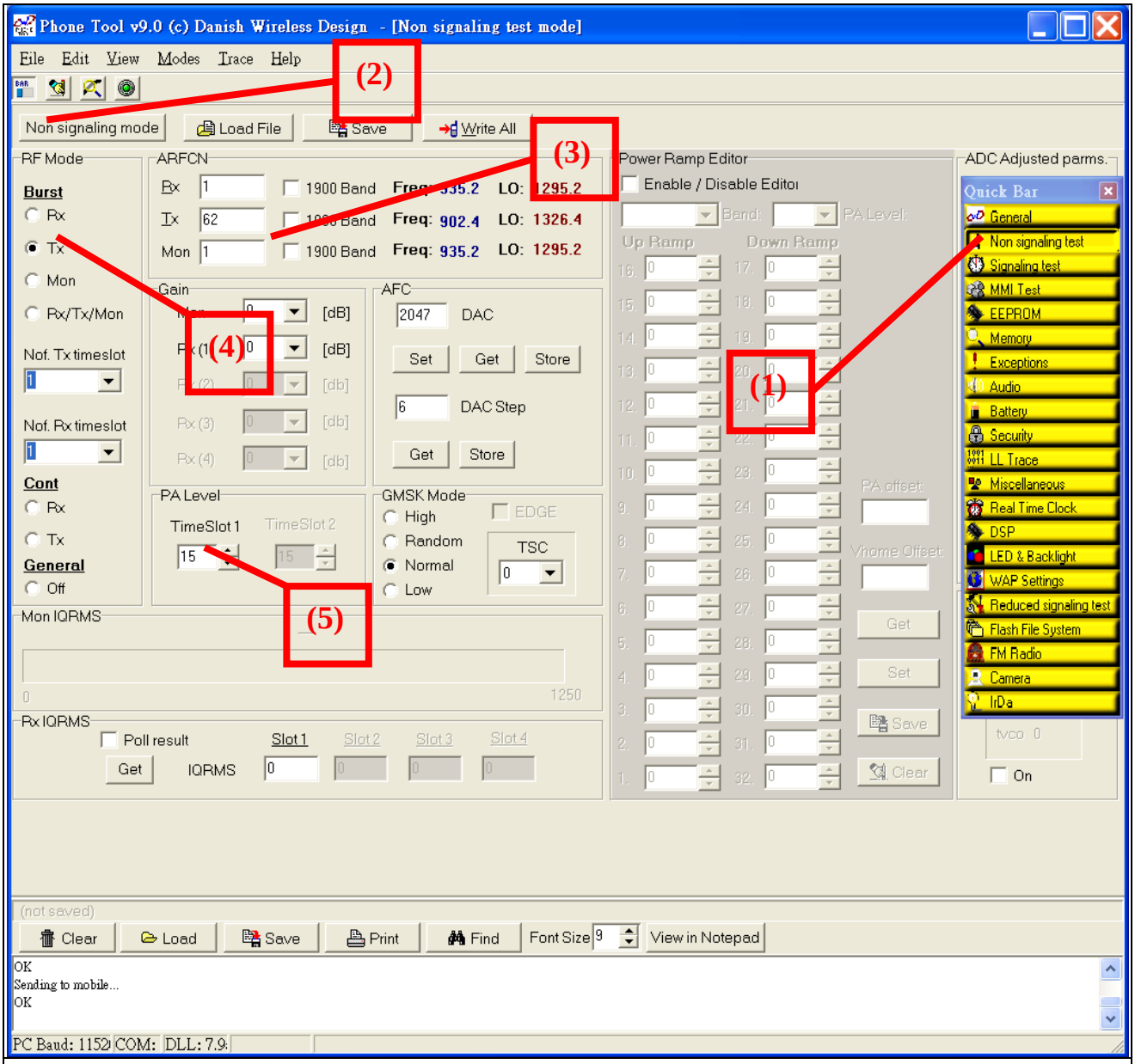
(2) Choose ” GSM BCH+TCH”.




Change Cell Band to”EGSM”。




Set TCH parameter in Agilent 8960:
Traffic Band：EGSM.
Traffic Channel: 62.
MS TX Level 15.




Before doing this step, one should complete previous "Initial connection" and "get into phone's test-mode" steps.

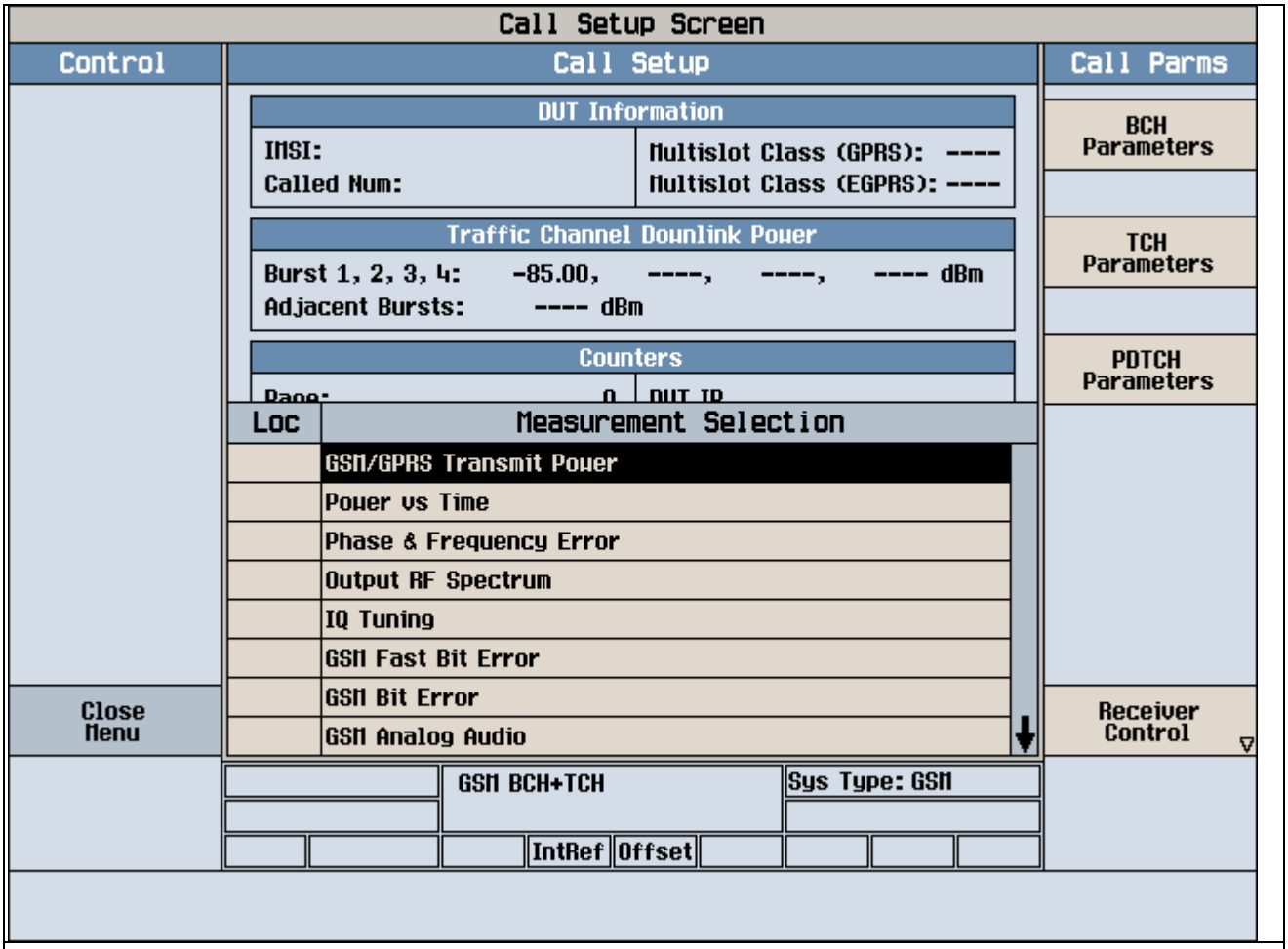
(1) Choose Non signaling test in "Quick Bar".

(2) Click" Non signaling test".

(3) Set up "Traffic channel"; enter 62 in ARFCN

(4) Choose TX Burst in " RF Mode".

(5) Set up "PA Level" to 15; Then click "Enter". Now the phone starts to launch a signal about EGSM Band; TCH 62; Power Level 15.

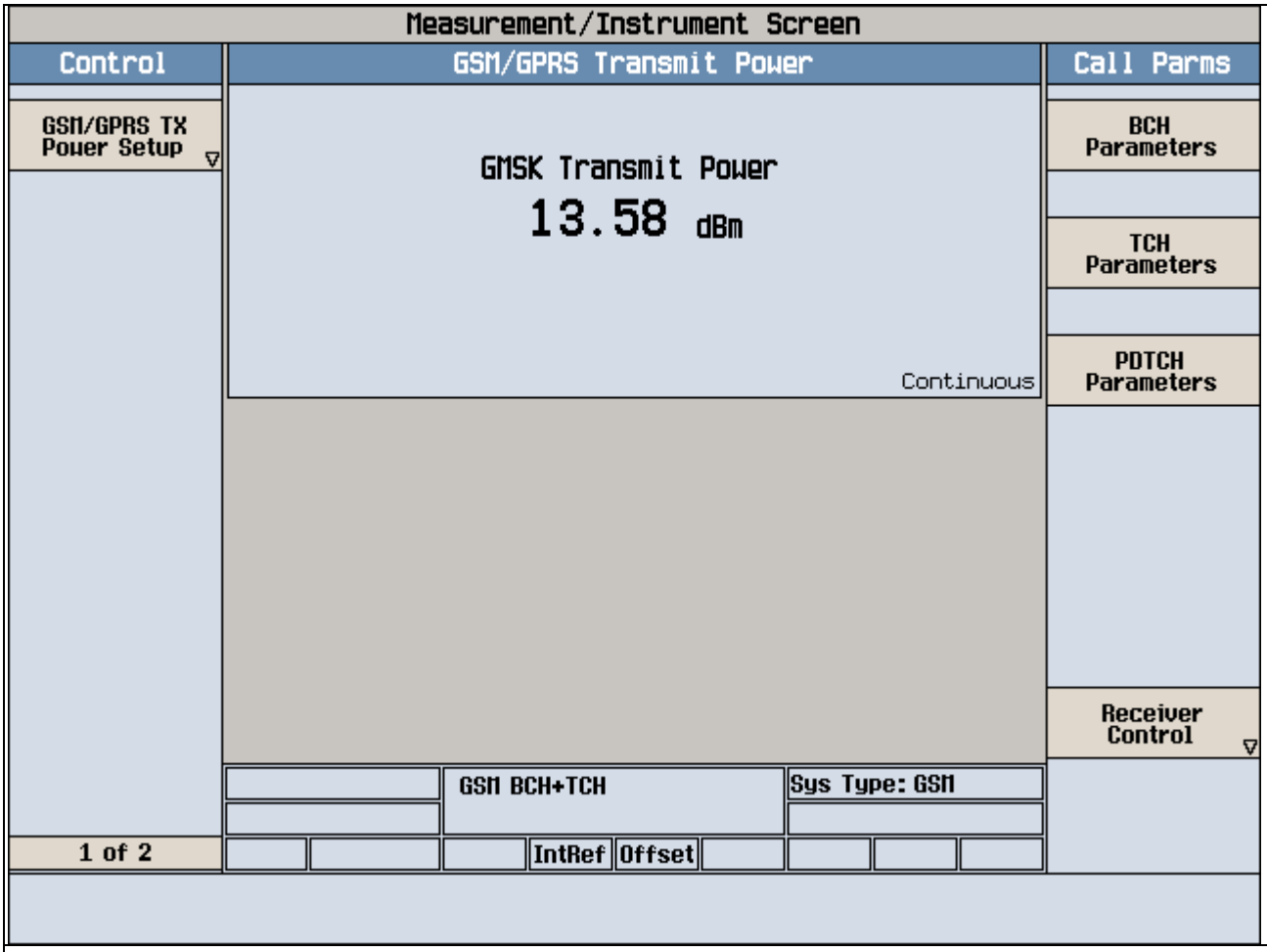



Measure TX Power by Agilent 8960

(1) Connect CON702 to instrument with RF adapter and coaxial cable.

(2) Click “Measurement Selection”.

(3) Choose “GSM/GPRS Transmit Power”

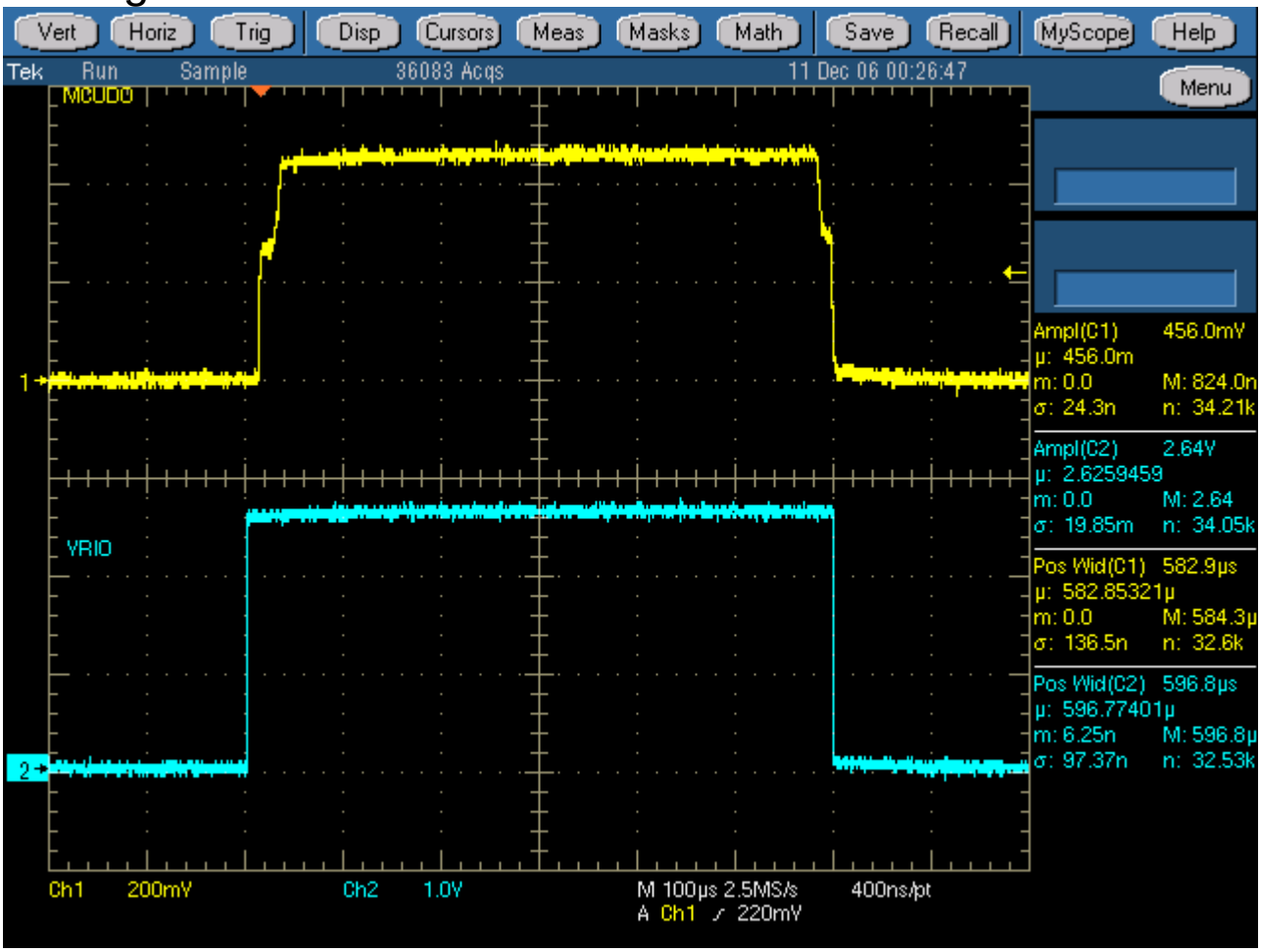



Read TX Power from instrument. (EGSM band；Ch62；PCL15)

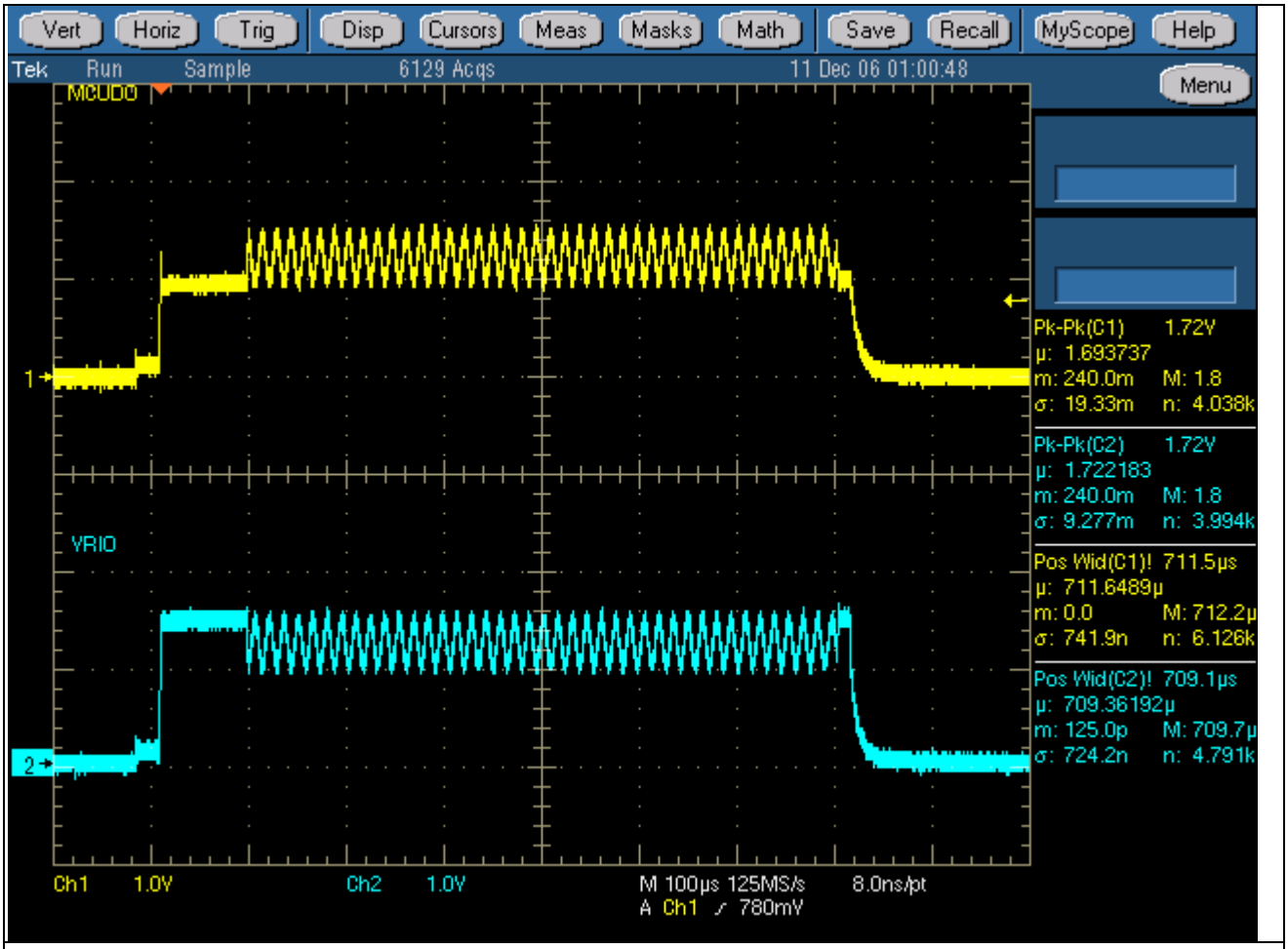
Acc

ording to spec, the power is 13dBm±3dB.

# 11. Signal Measure



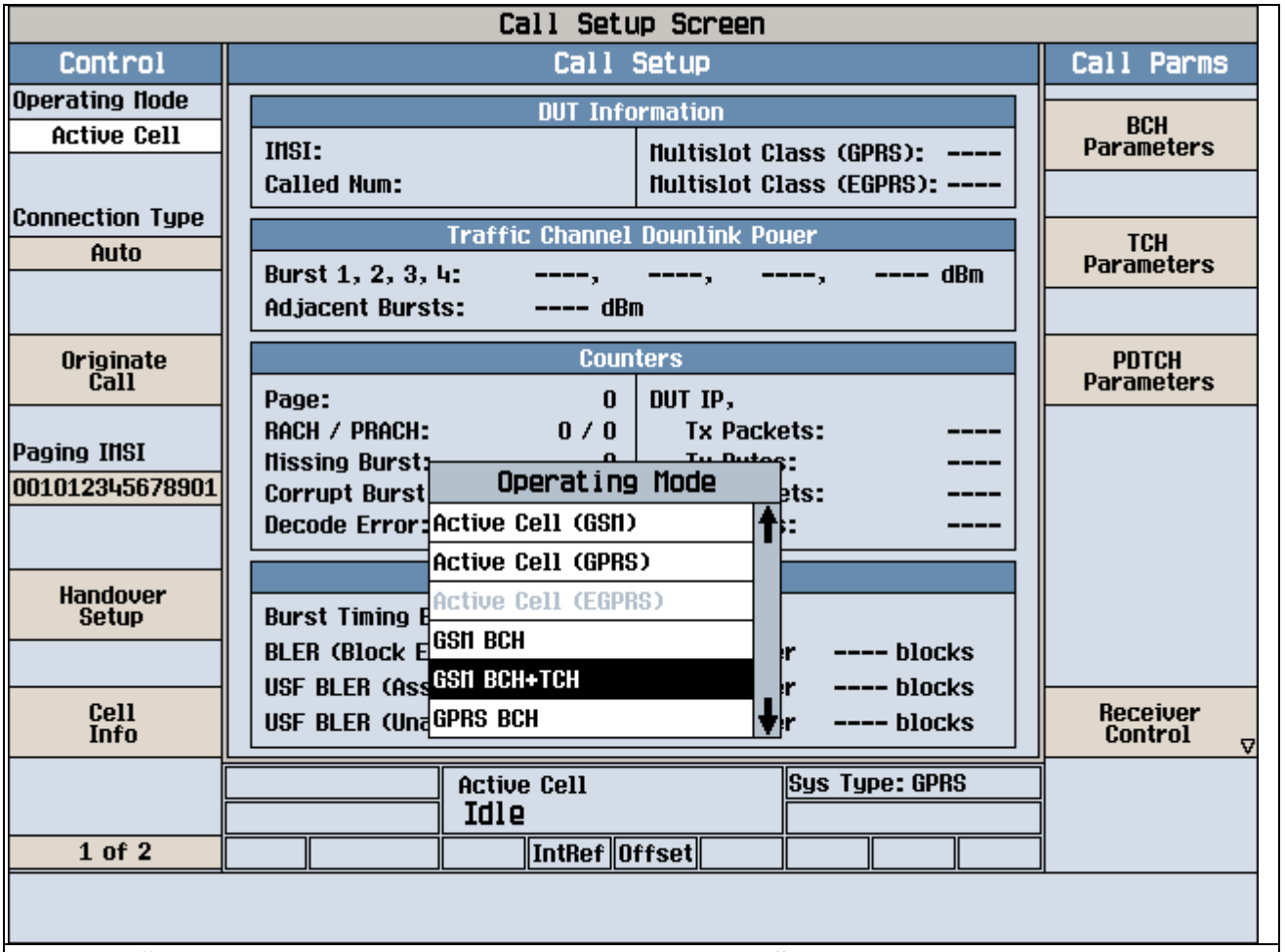

From C744.Pin1, one can get the yellow signl.
From C746.Pin2, one can get the blue signal.
Notice that if the highest voltage value in yellow signal is strange or not.
In this example, the yellow voltage signal is about 450mV, and both time periods are about 580us.
It’s possible to probe these two waves without Agilent 8960; only make phone to send out power, and then probe C744.Pin1 and C746.Pin2.



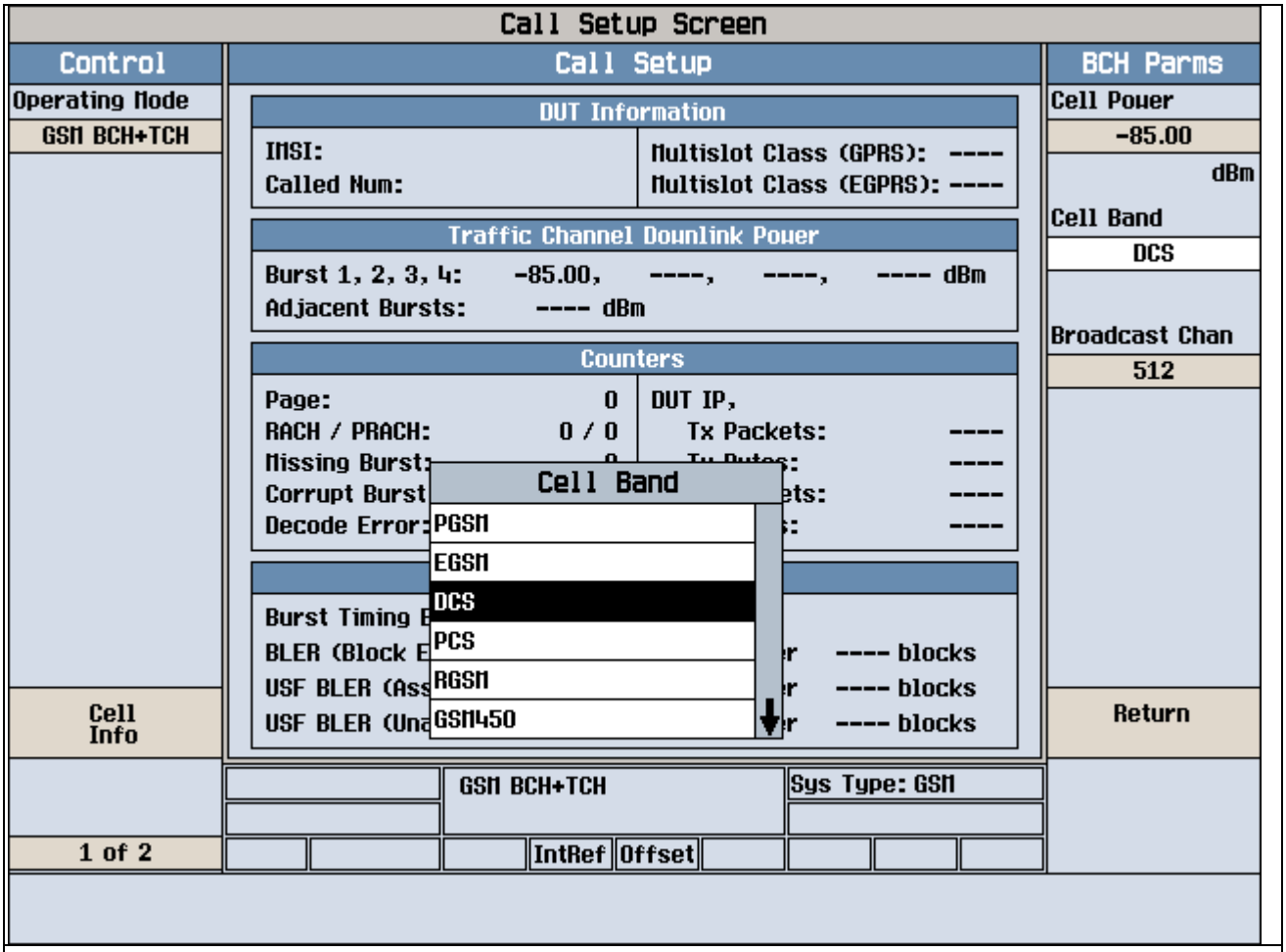

From both sides of C770, one can measure two signals.

It’s possible to probe these two waves without Agilent 8960; only make phone to send out power, and then probe both sides of C770 .

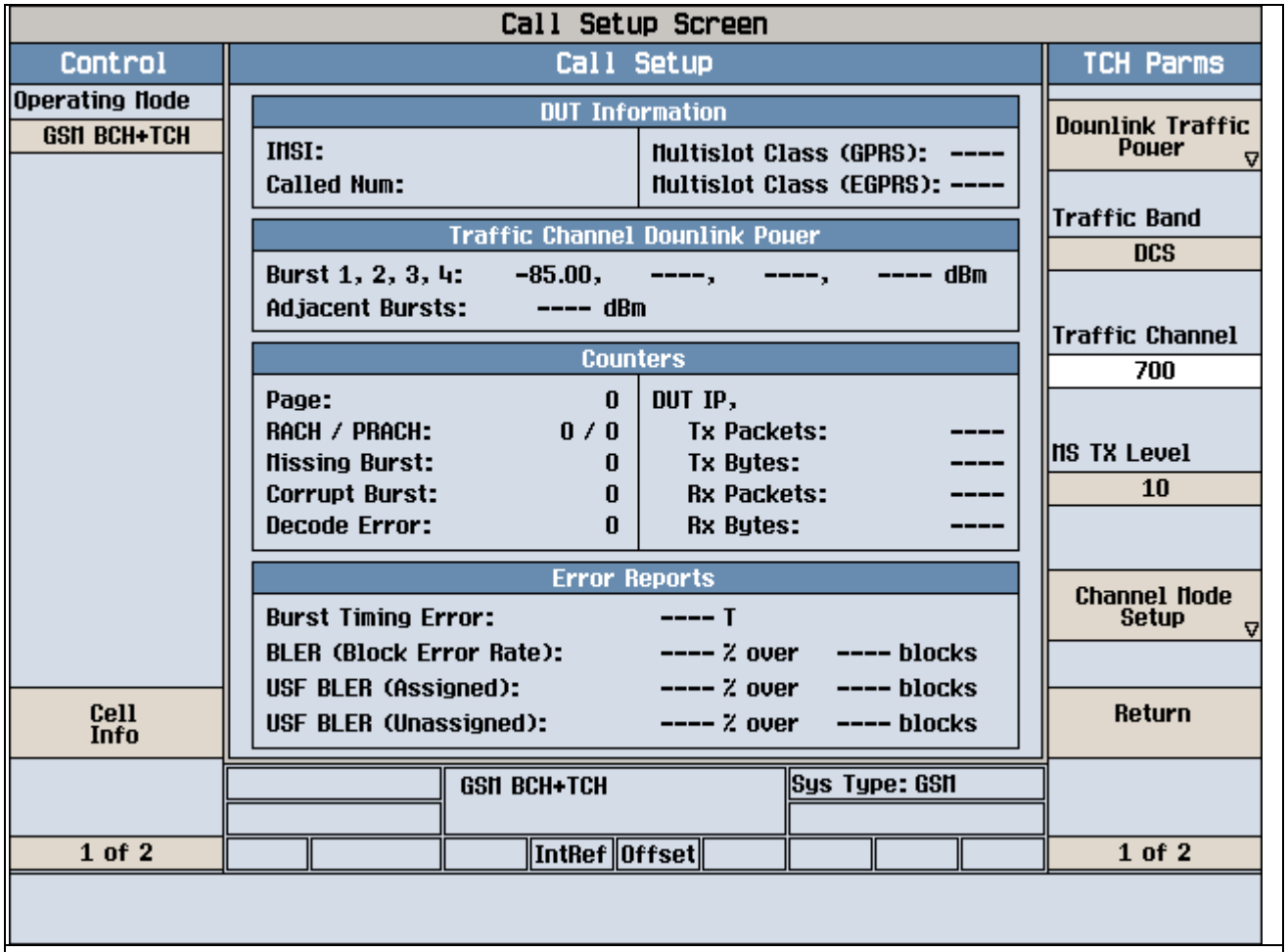
DCS1800 TX(Non-Signaling Mode)



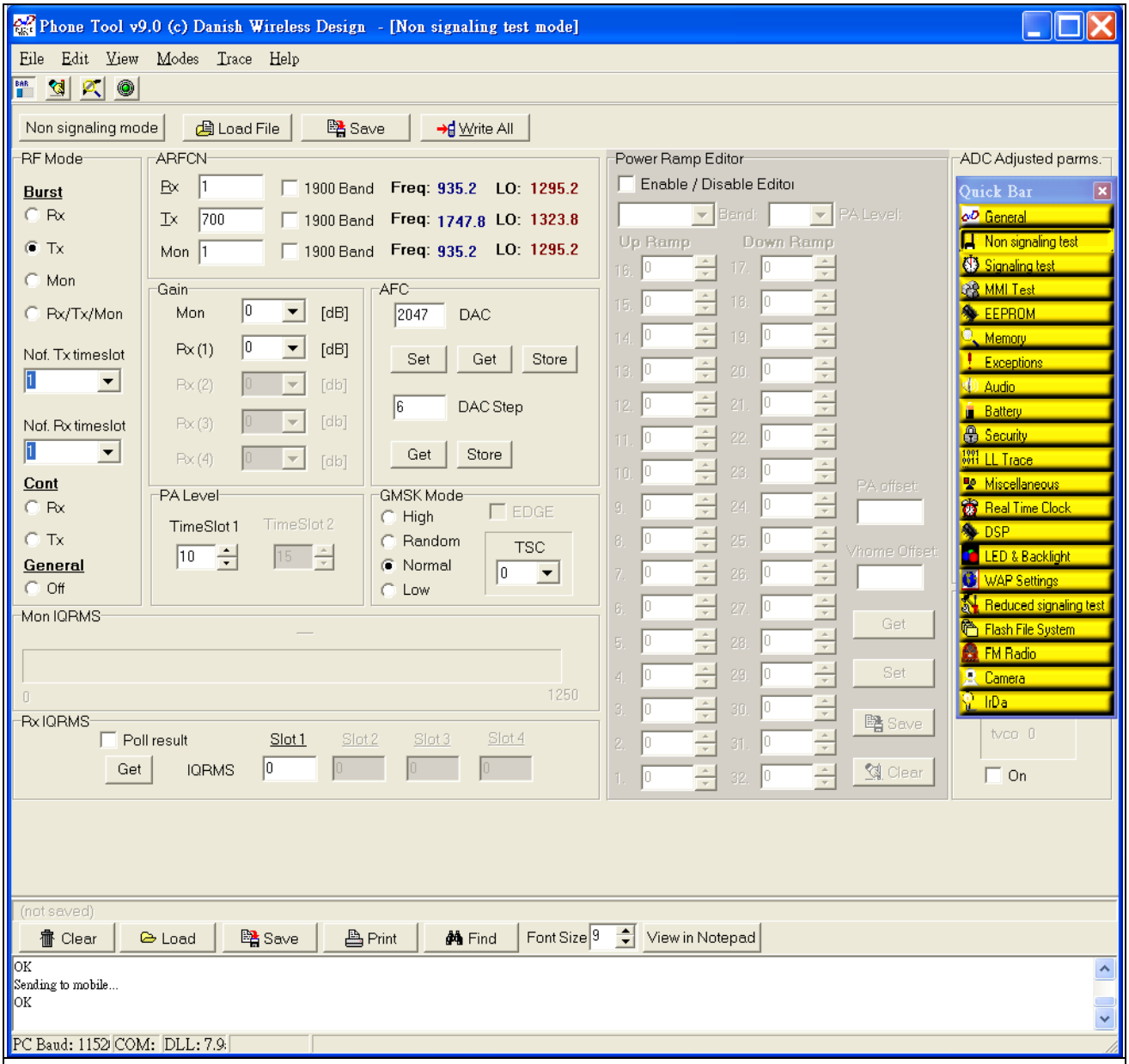

Enter “Non-Signaling Mode of Agilent 8960”




When set BCH Parameter，Choose Cell Band to DCS.




Set Agilent TCH Parameter in Agilent 8960：
Traffic Band：DCS.
Traffic Channel: 700.
MS TX Level 10.




Before doing this step, one should complete previous "Initial connection" and "Get into phone's test mode" steps.

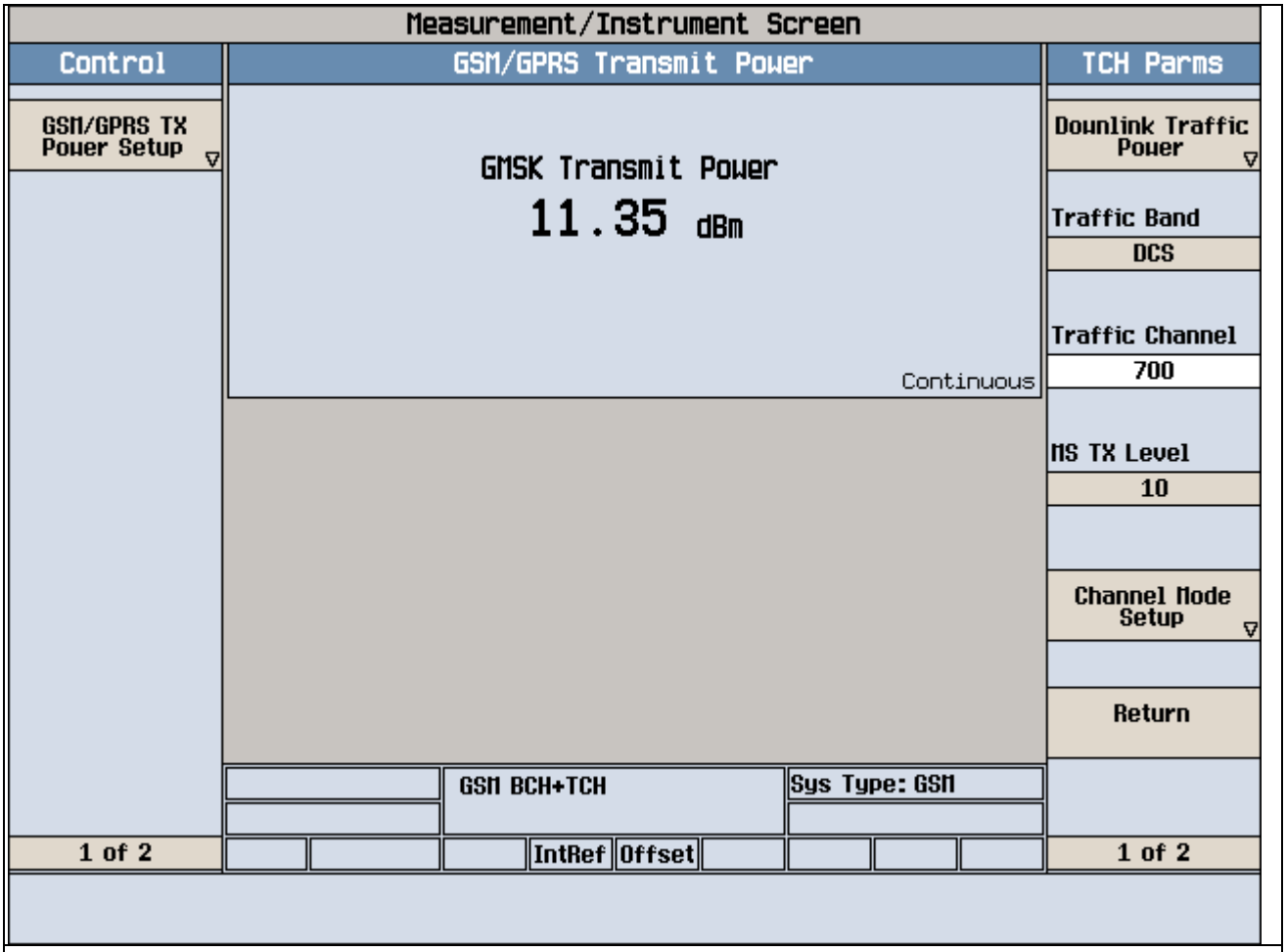
(1) Choose Non signaling test in "Quick Bar".

(2) Click" Non signaling test".

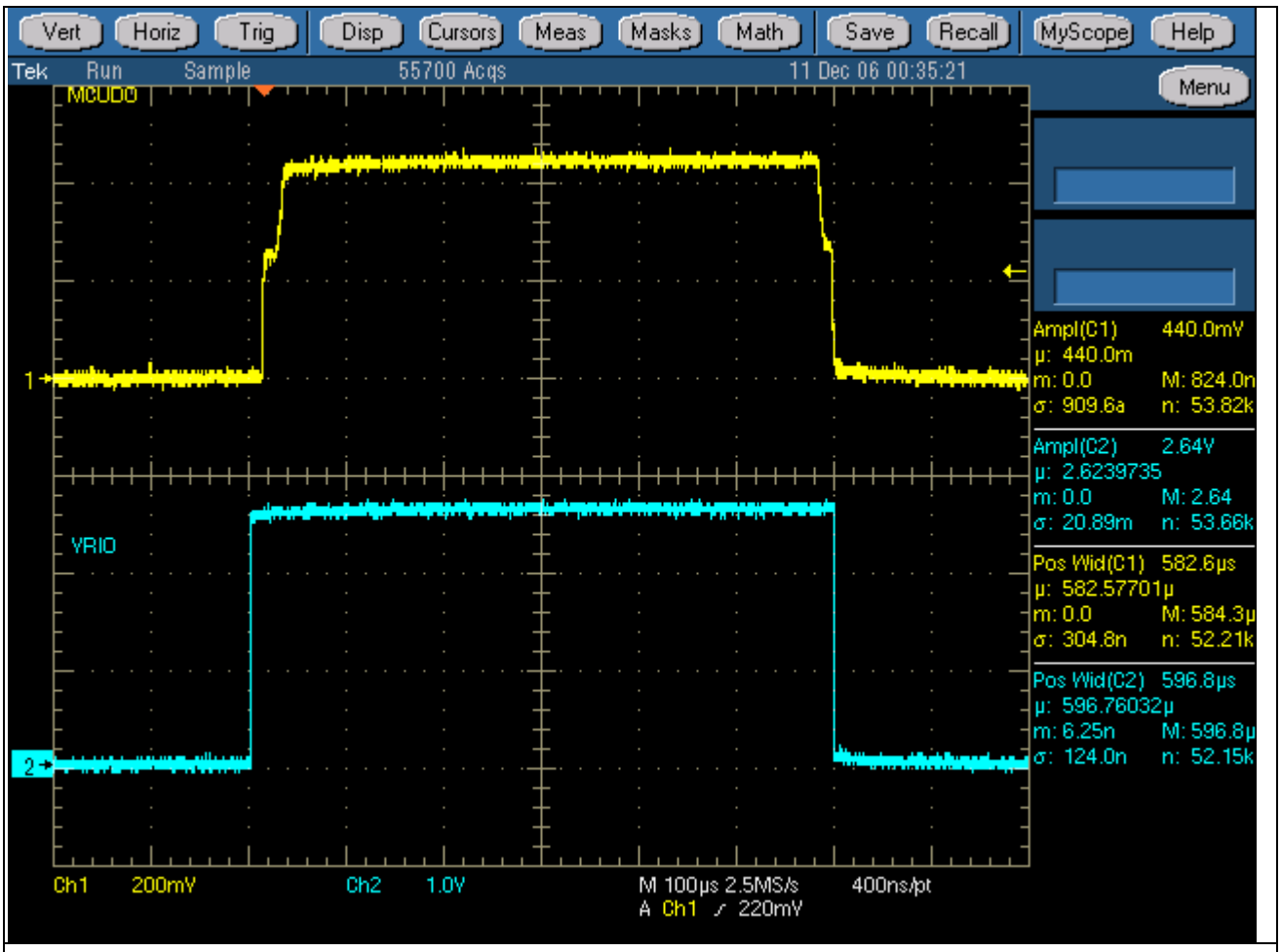
(3) Set up "Traffic channel"; enter 700 in ARFCN

(4) Choose TX Burst in " RF Mode".

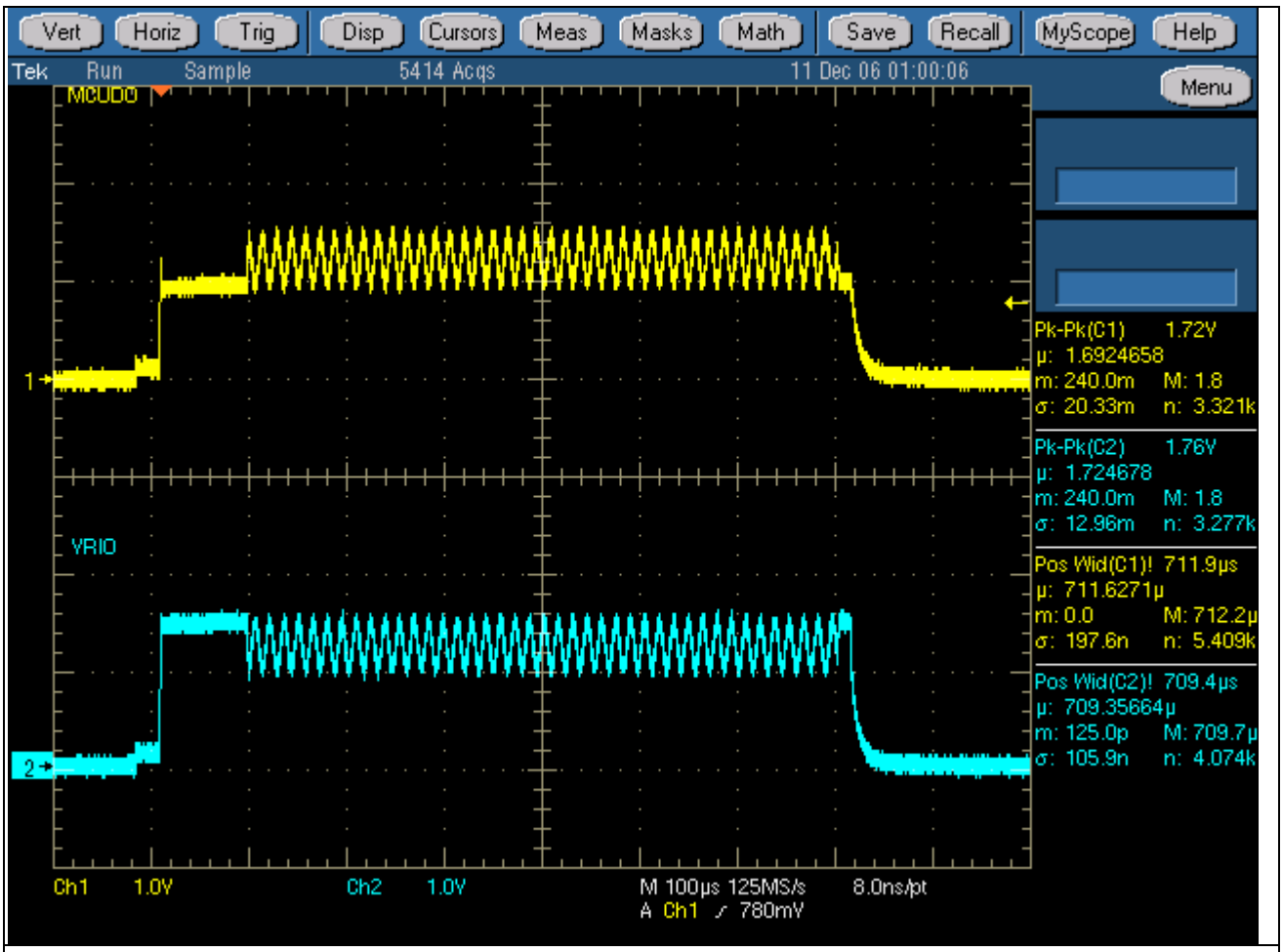
(5) Set up "PA Level" to 10; Then click "Enter". Now the phone starts to launch a signal about DCS Band；TCH 700；Power Level 10.




Refer to “Setting up TX Power in Agilent 8960”.
Read TX Power from instrument.(DCS band；Ch700；PCL10)
According to spec, the power is 10dBm±3dB.



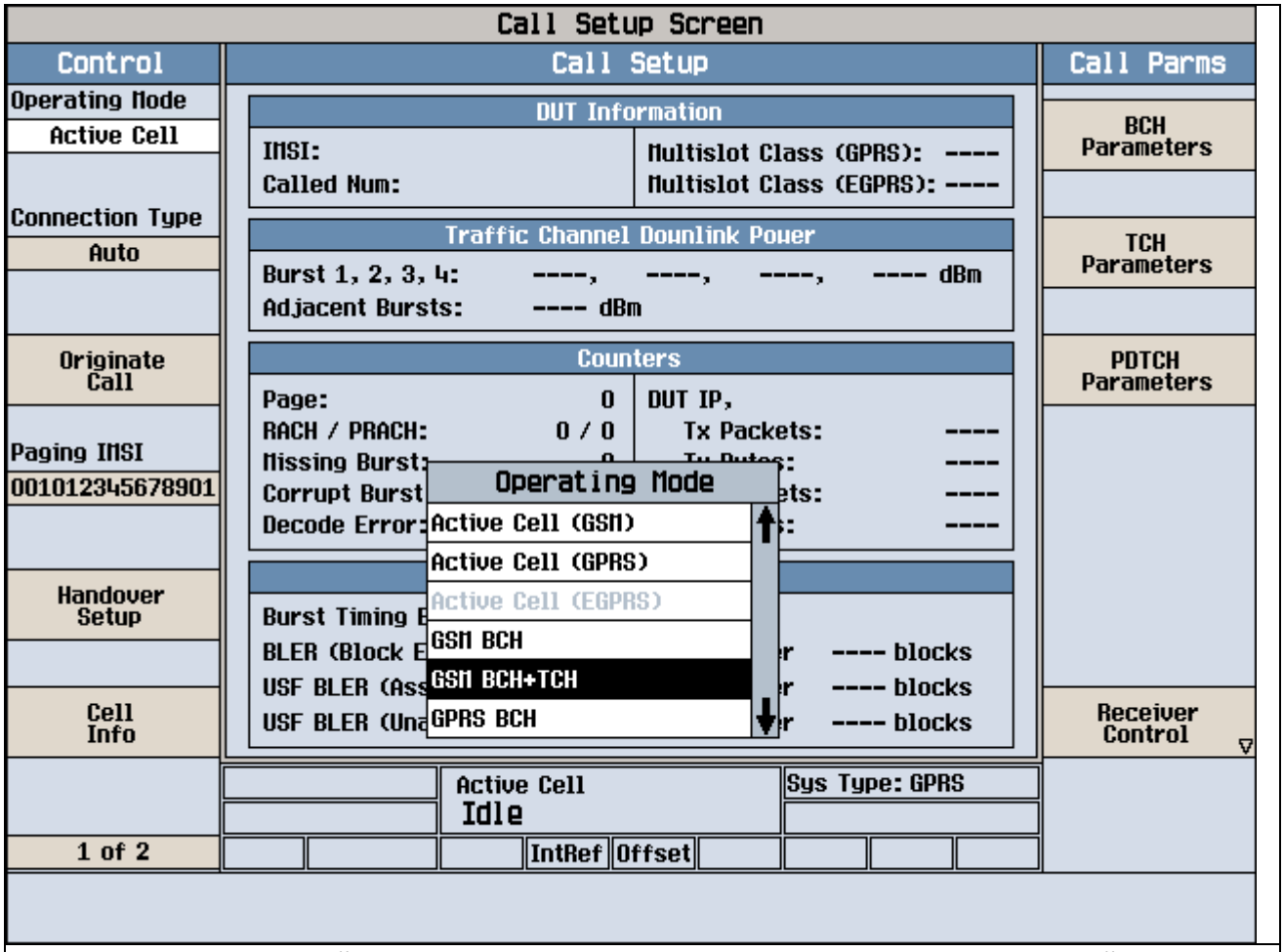

From C744.Pin1, one can get the yellow signal.
From C746.Pin2, one can get the blue signal.
Notice that if the highest voltage value in yellow signal is strange or not.
In this example, the yellow voltage signal is about 440mV, and both time periods are about 580us.
It’s possible to probe these two waves without Agilent 8960; only make phone to send out power; then probe C744.Pin1 and C746.Pin2.



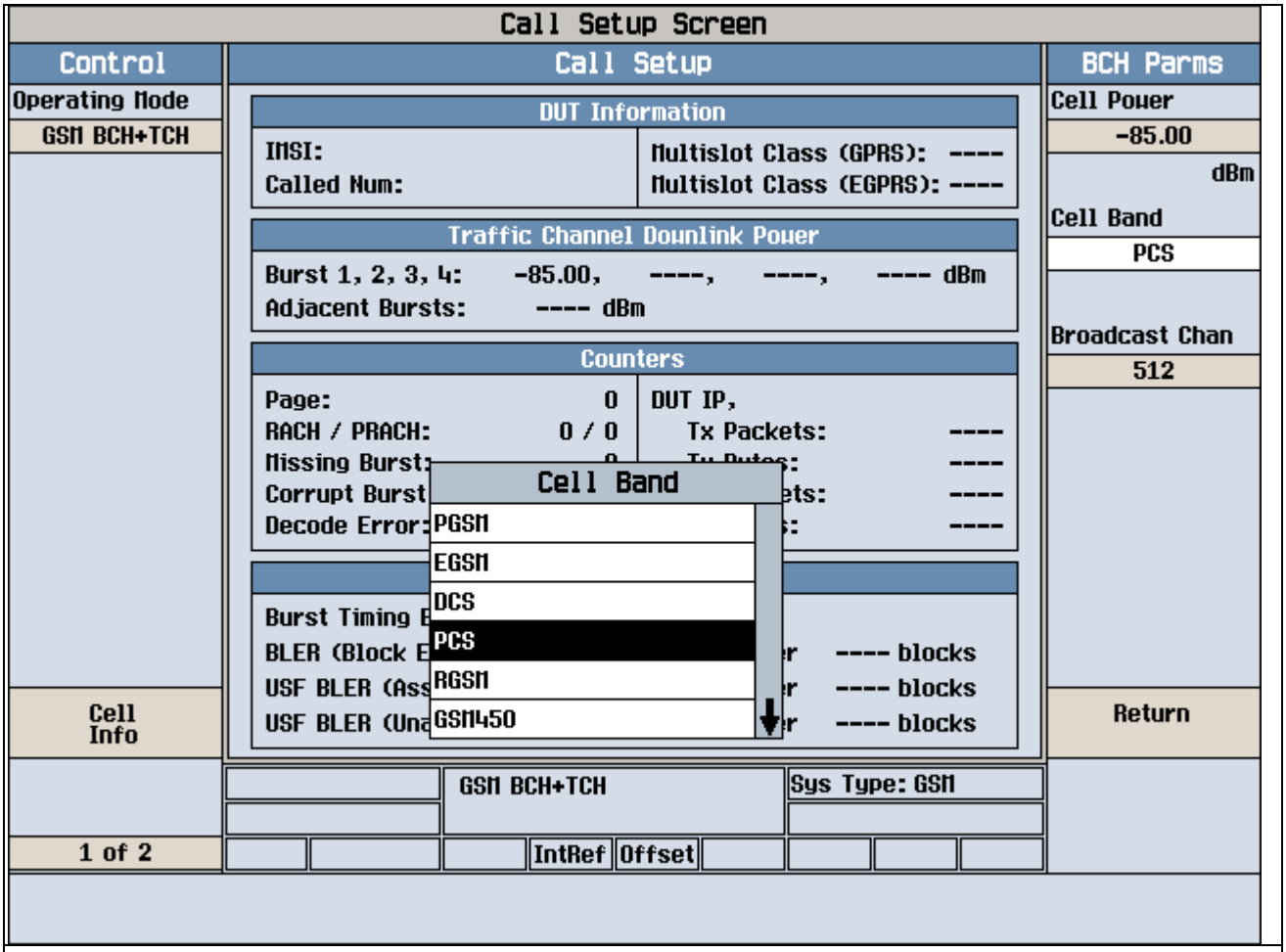

From both sides of C770, one can measure two signals.

It’s possible to probe these two waves without Agilent 8960; only make phone to send out power, and then probe both sides of C770 .

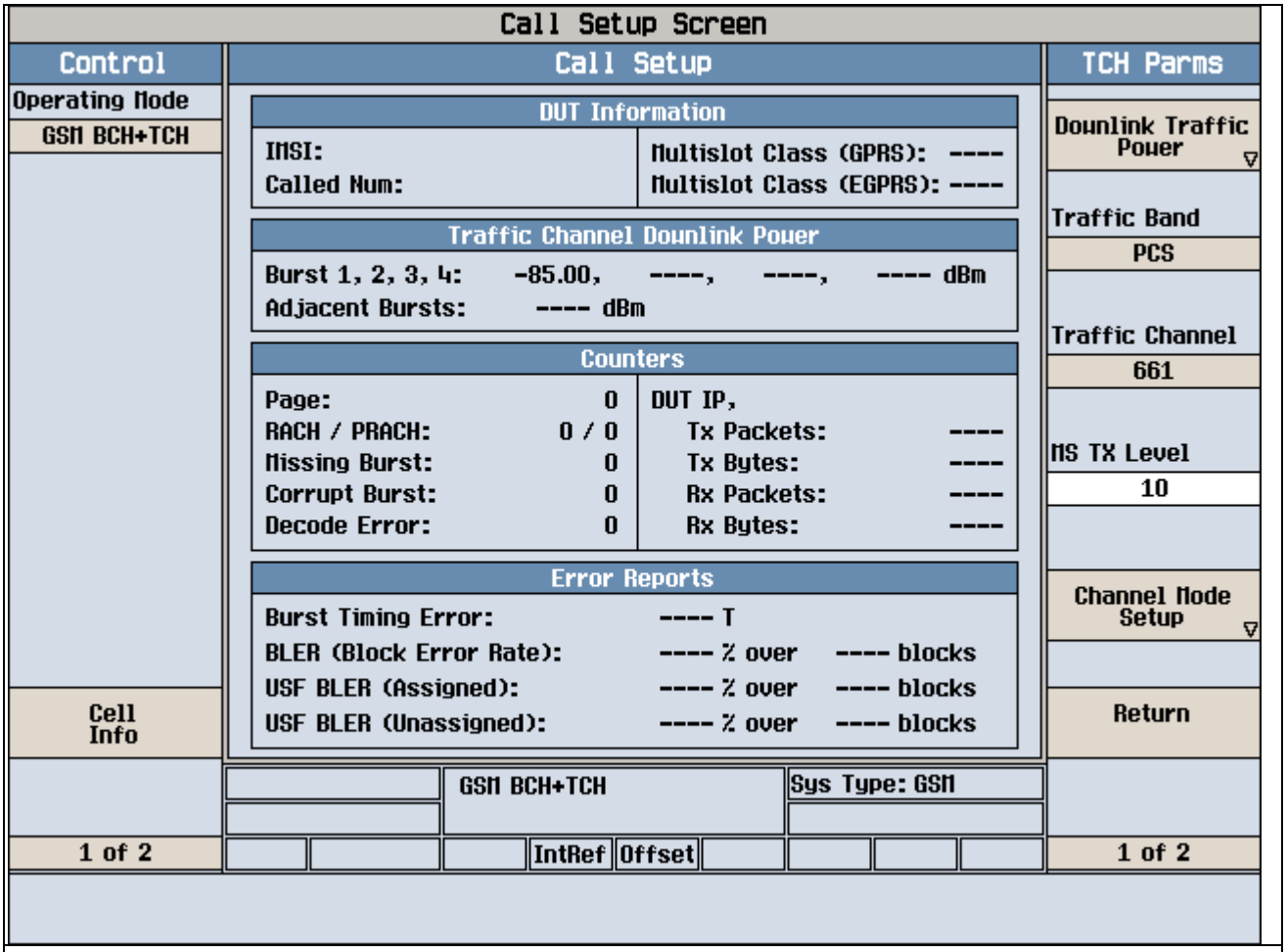
PCS1900 TX (Non-signaling Mode)



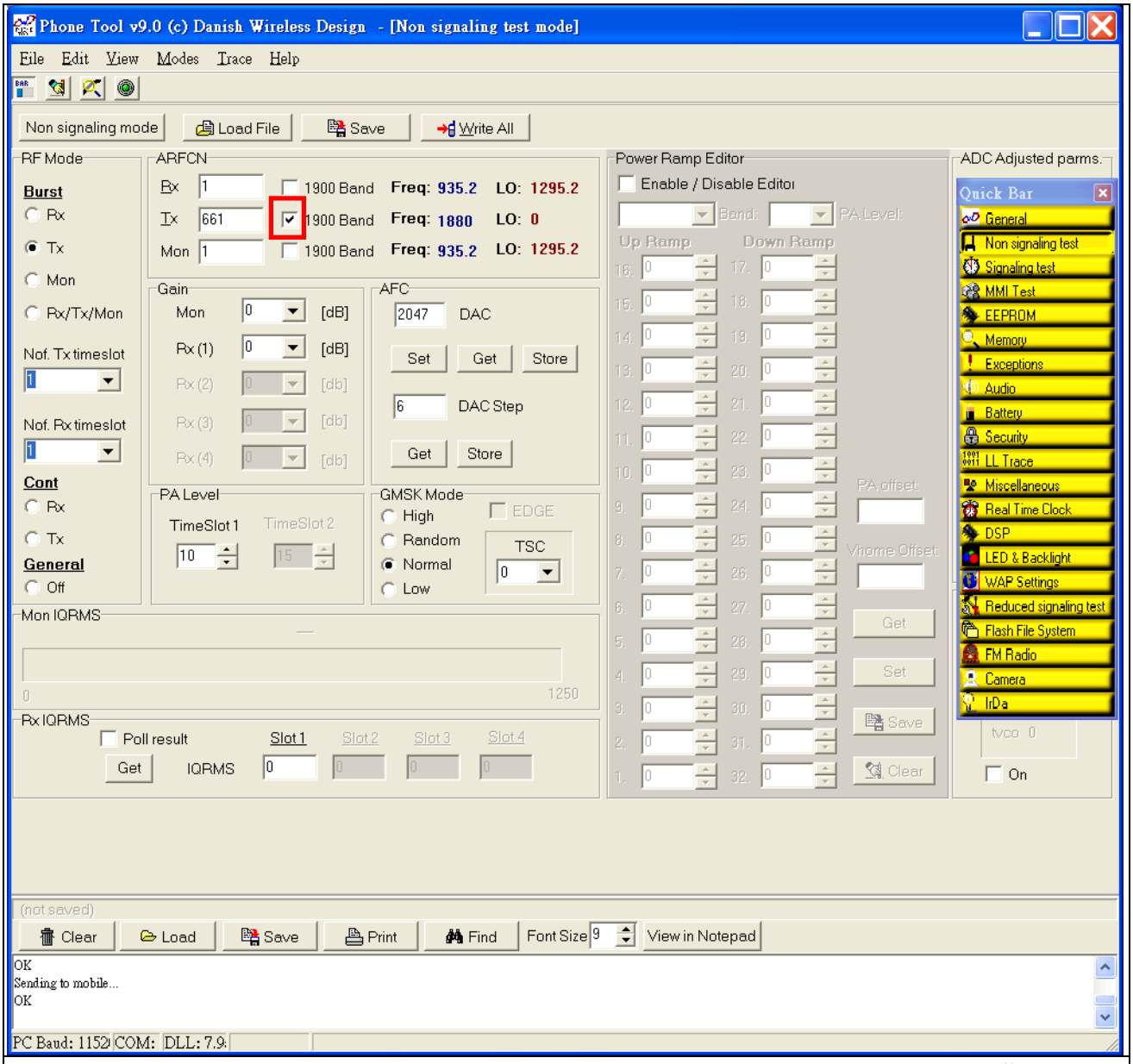

Refer to previous ” Enter Non-Signaling mode in Agilent 8960” .




When set BCH Parameter，Choose Cell Band to PCS.




Set TCH parameter in Agilent 8960：
Traffic Band：PCS.
Traffic Channel: 661.
MS TX Level 10.




Before doing this step, one should complete previous "Initial connection" and "Get into phone's test mode" two steps.

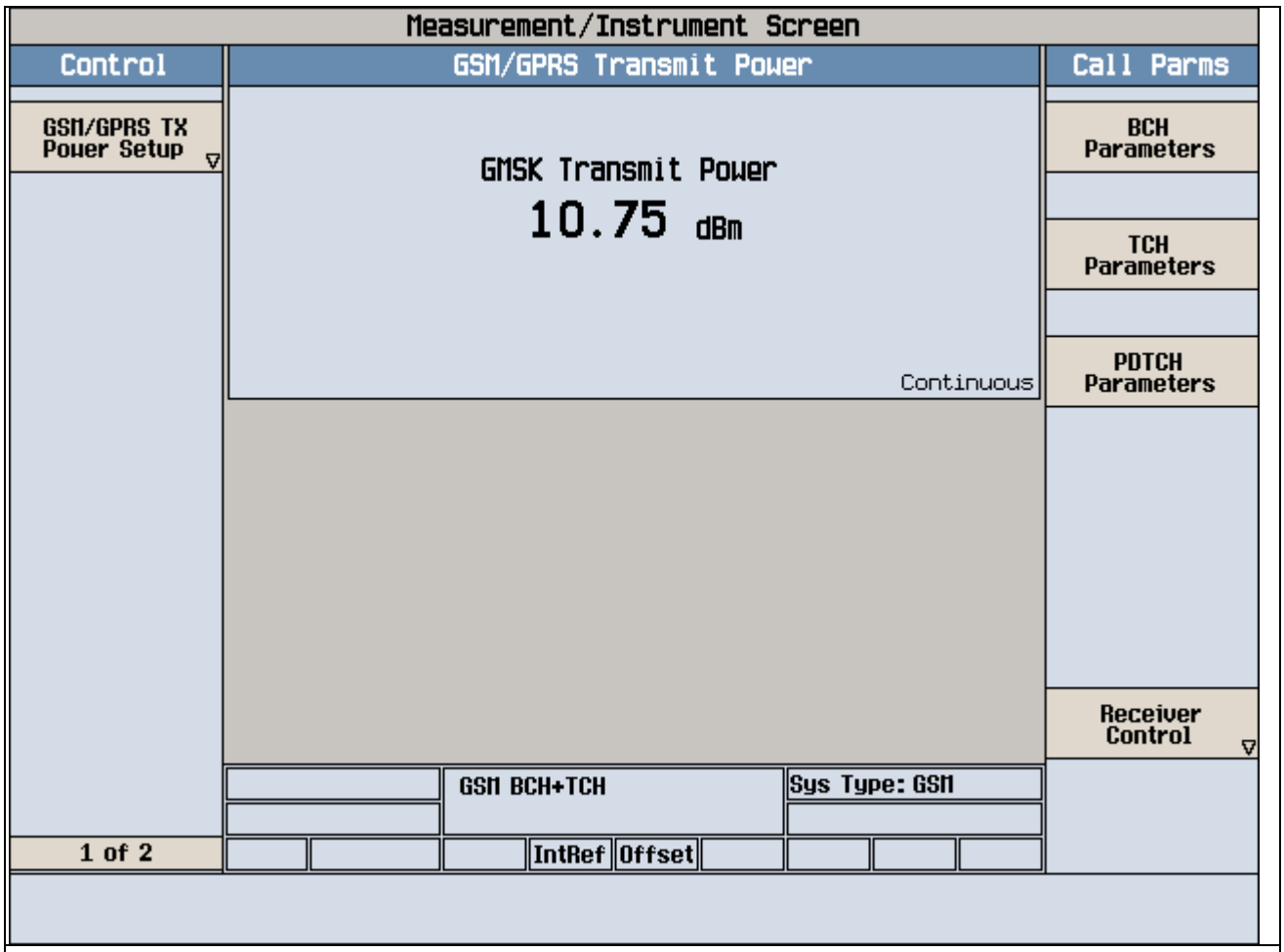
(1) Choose Non signaling test in Quick Bar.

(2) Click" Non signaling test".

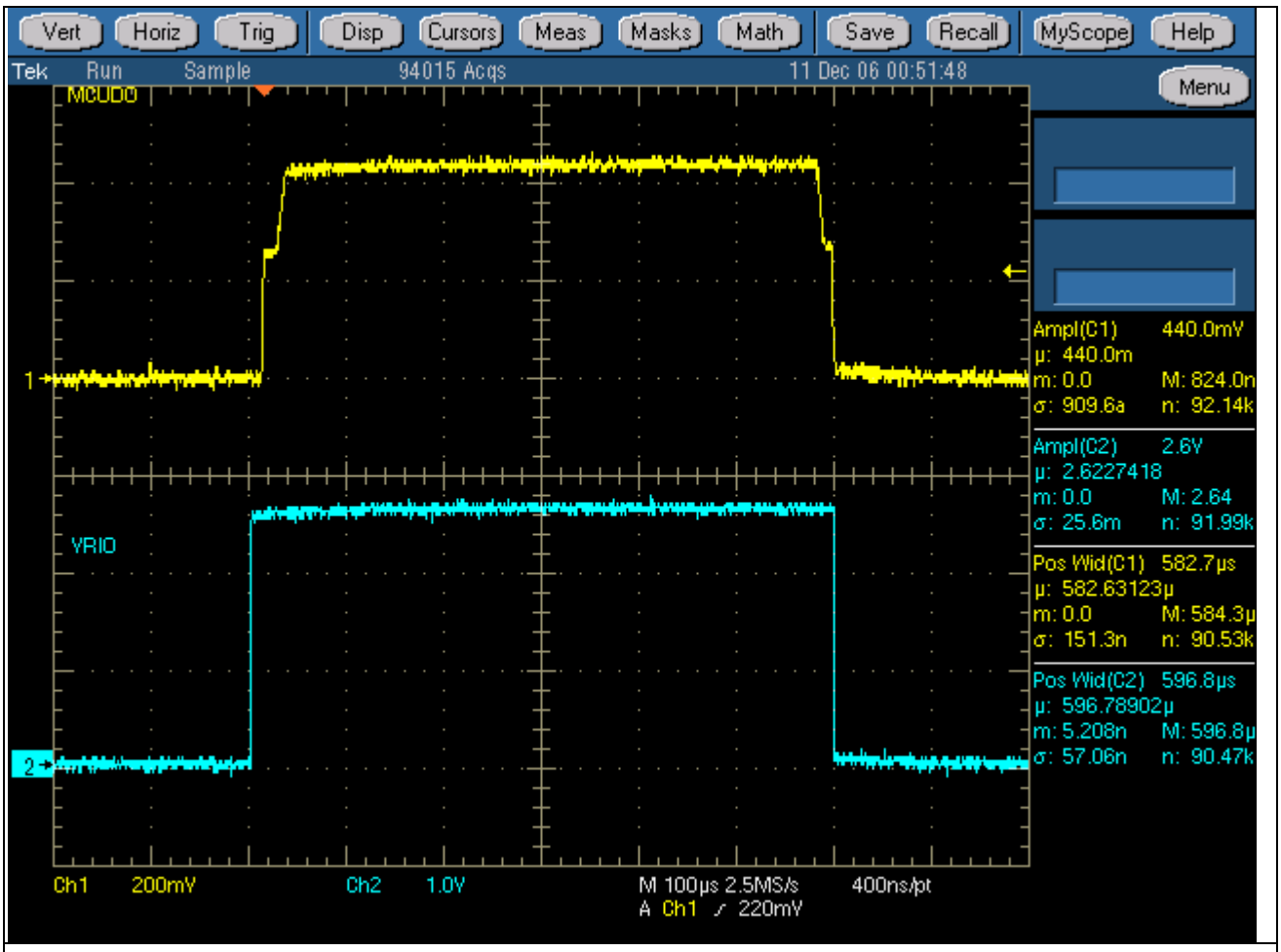
(3) Set up "Traffic channel"; enter 661 in ARFCN

(4) Choose TX Burst in " RF Mode".

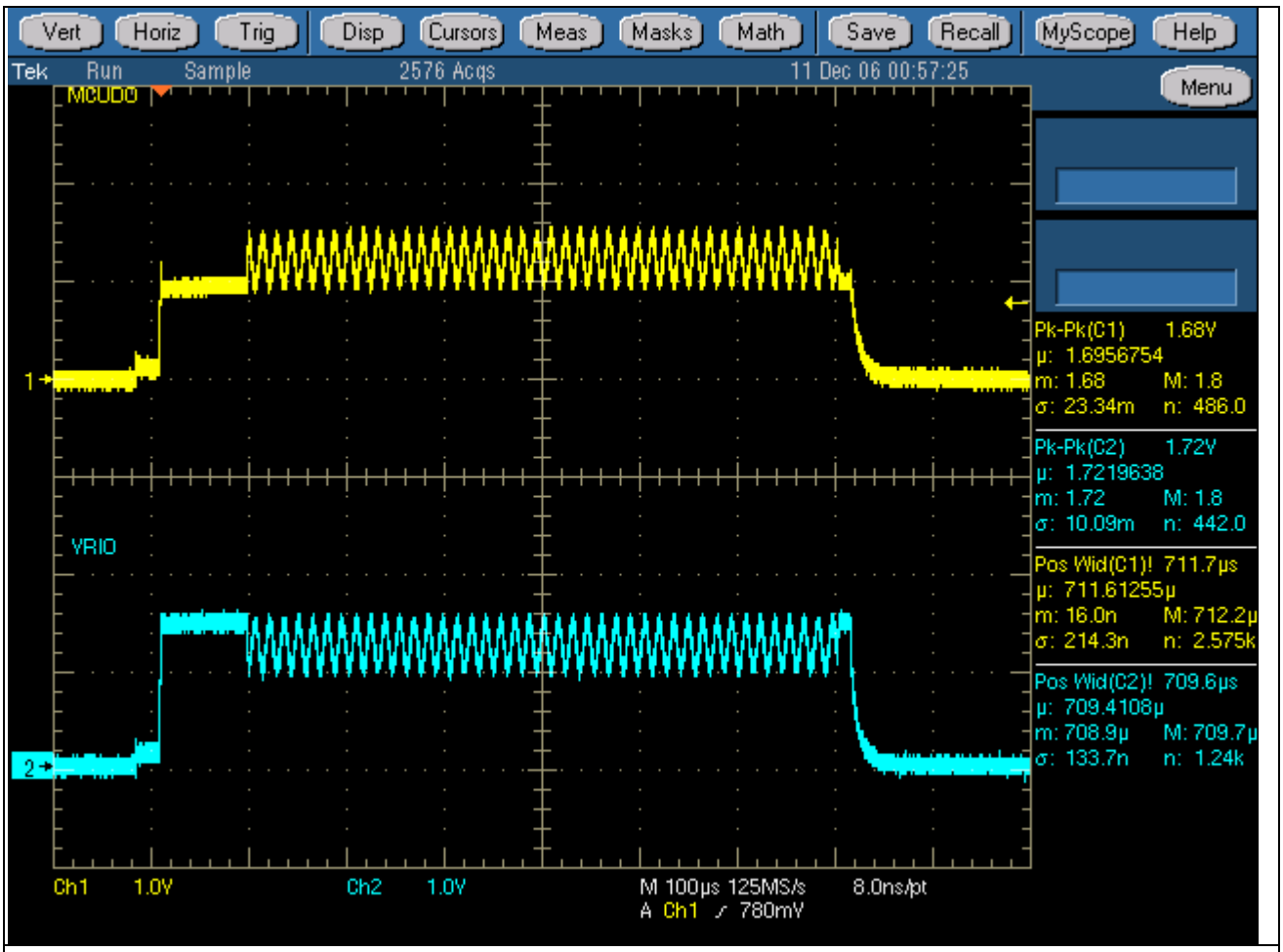
(5) Set up "PA Level" to 10; Then click "Enter". Now the phone starts to launch a signal about PCS Band；TCH 661；Power Level 10.




Refer to “Measure TX Power in Agilent 8960”.
Read TX Power from instrument. (PCS band；Ch661；PCL10)
According to spec, the power is 10dBm±3dB。



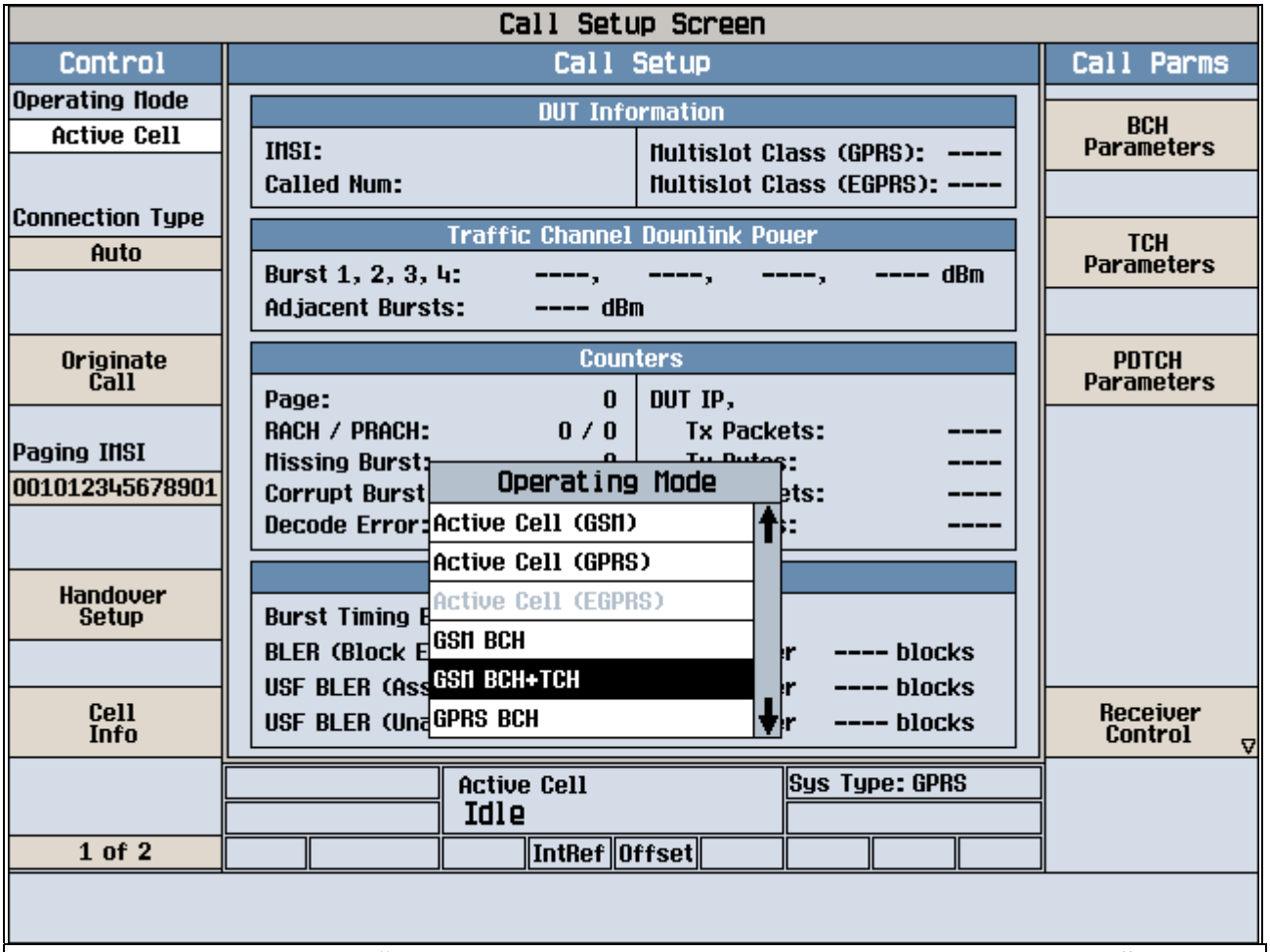

From C744.Pin1, one can get the yellow signal.
From C746.Pin2, one can get the blue signal.
Notice that if the highest voltage value in yellow signal is strange or not.
In this example, the yellow voltage signal is about 440mV, and both time periods are about 580us.
It’s possible to probe these two waves without Agilent 8960; only make phone to send out power; then probe C744.Pin1 and C746.Pin2.



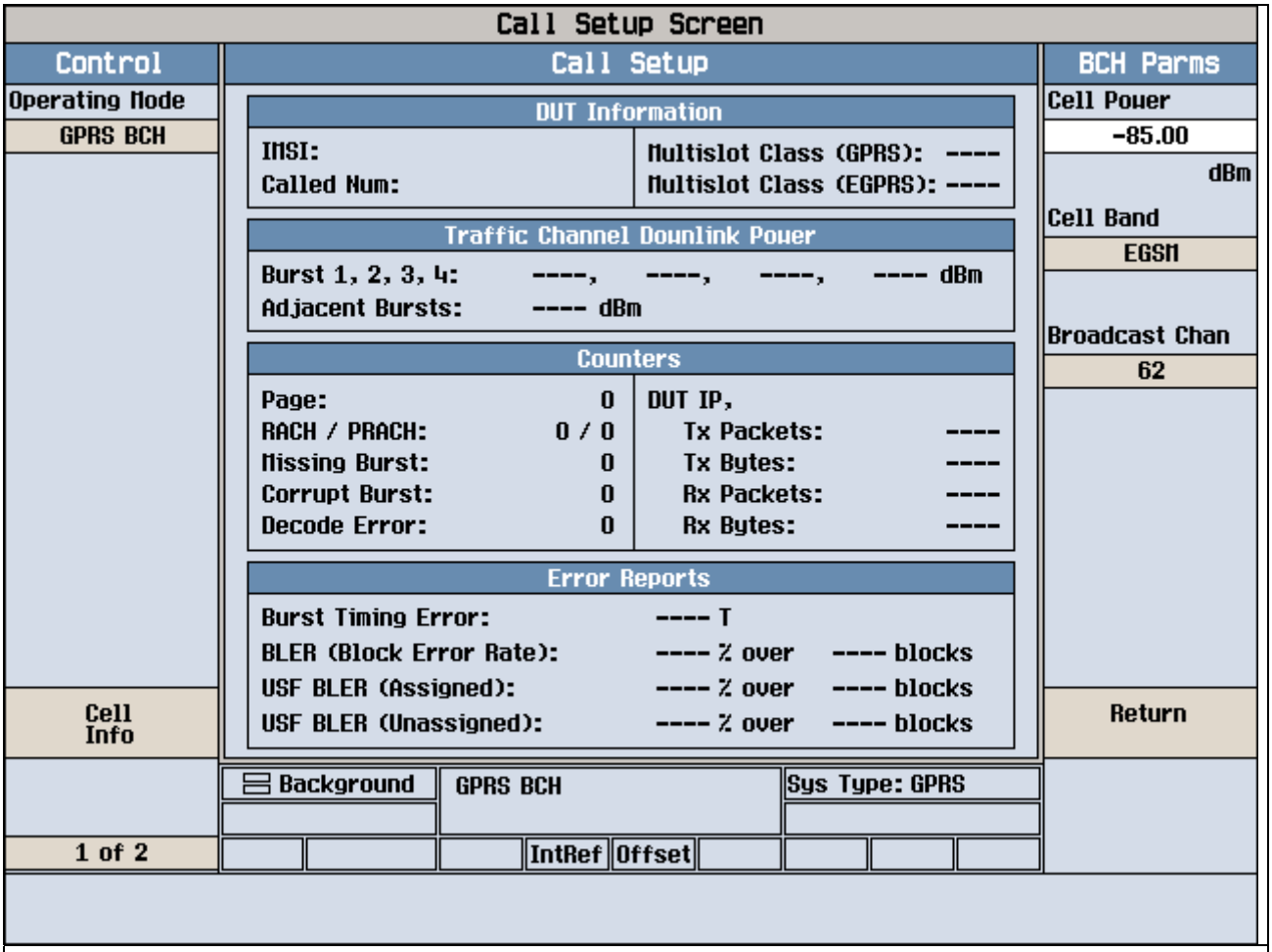

From both sides of C770, one can measure two signals.

It’s possible to probe these two waves without Agilent 8960; only make phone to send out power, and then probe both sides of C770 .

EGSM900/DCS1800/PCS1900 RX (Non-signaling Mode)



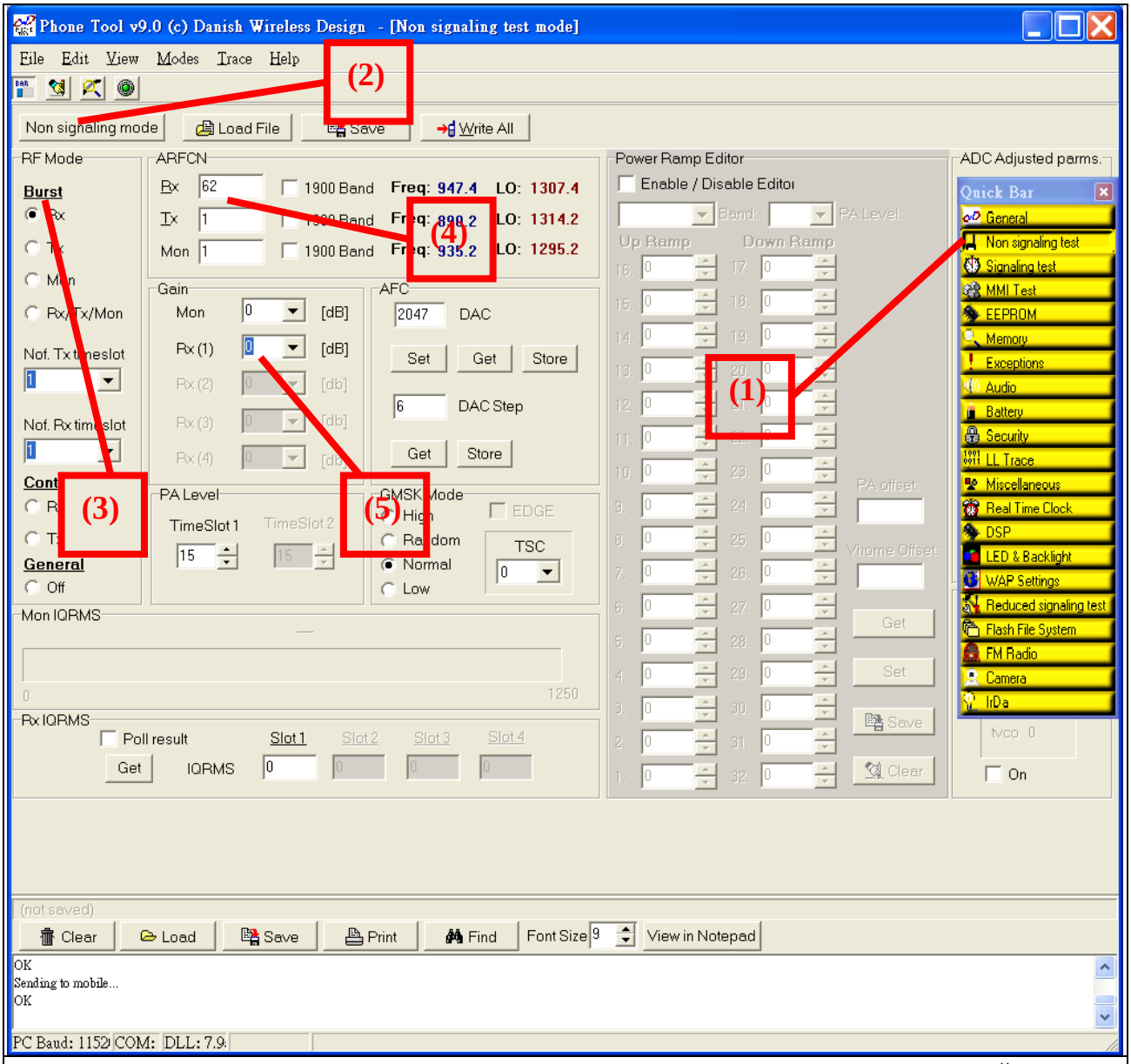

Refer to previous "Enter Non-Signaling mode in Agilent 8960".




(1) When setting up BCH Parameter, choose "Cell Band" to a band under test. This illustration take GSM band for example.

(2) Set up Cell Power to -85dBm。

(3) Choose "Broadcast Channel" to 62。




Before doing this step, one should complete previous "Initial connection" and "Get into phone's test mode" two steps.

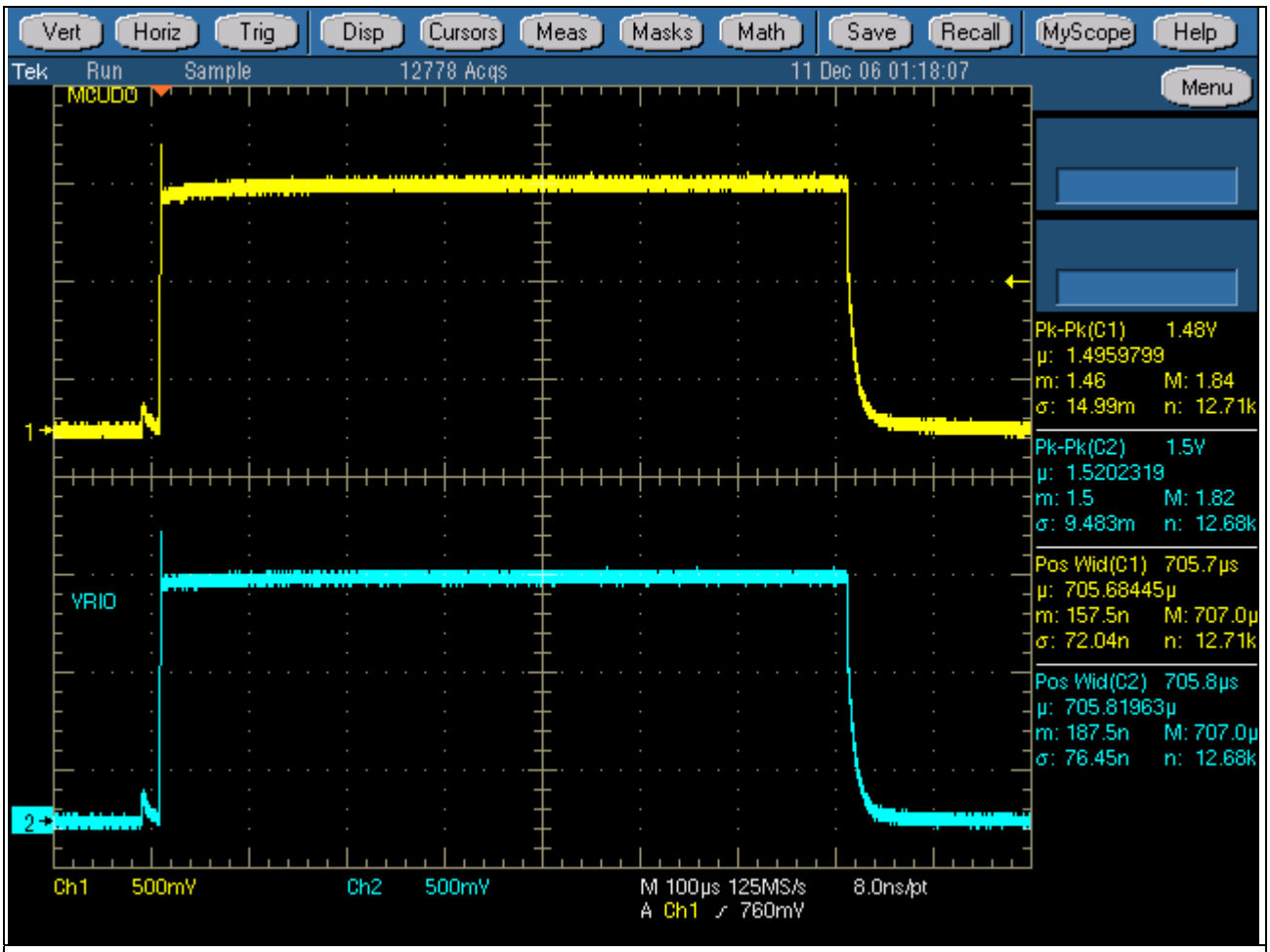
(1) Choose Non signaling test in Quick Bar.

(2) Click" Non signaling test".

(3) Set up "Traffic channel"; enter 62 in ARFCN

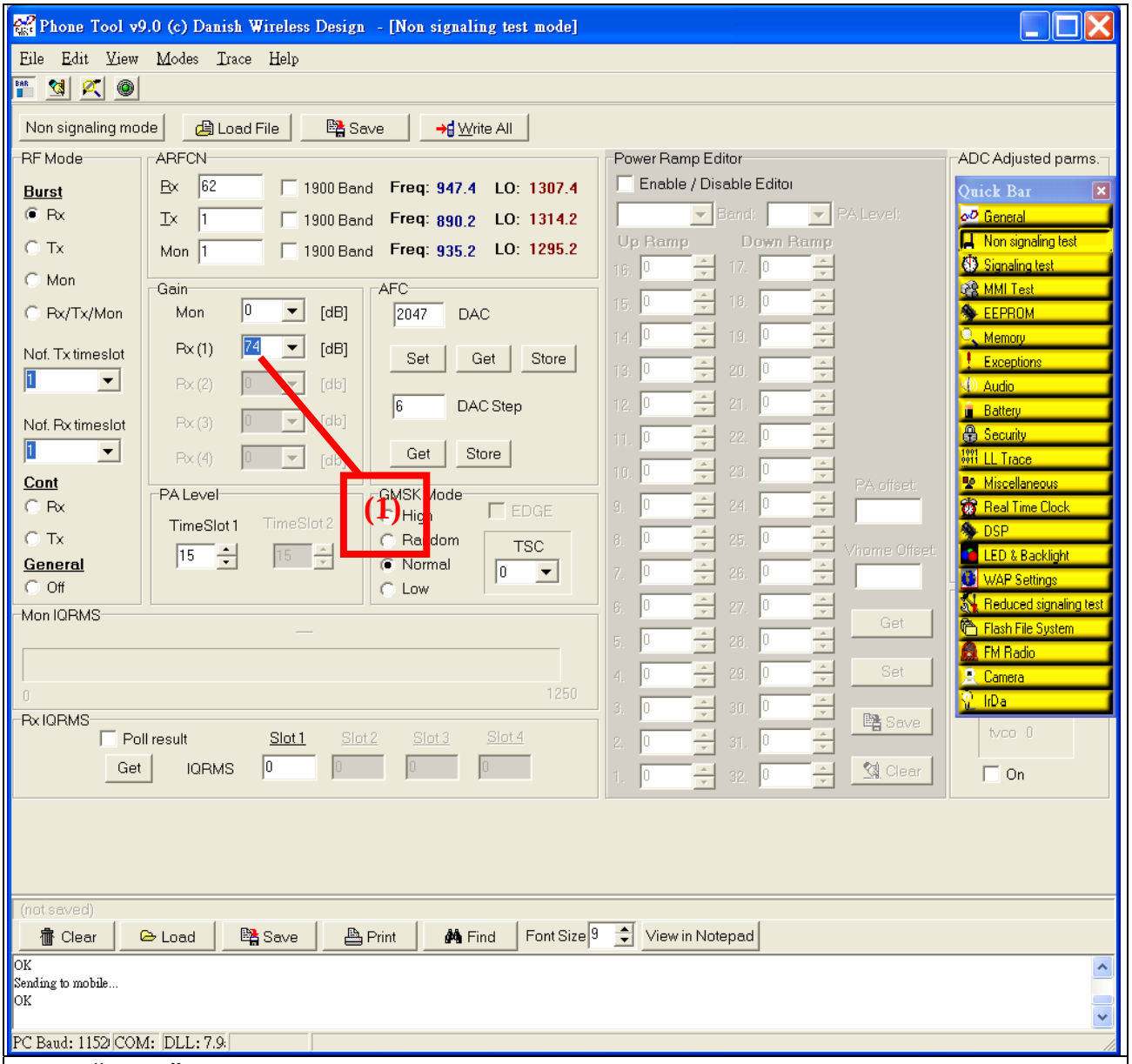
(4) Choose RX Burst in " RF Mode".

(5) Set up Gain; to 10; fill "0" in RX(1) blank

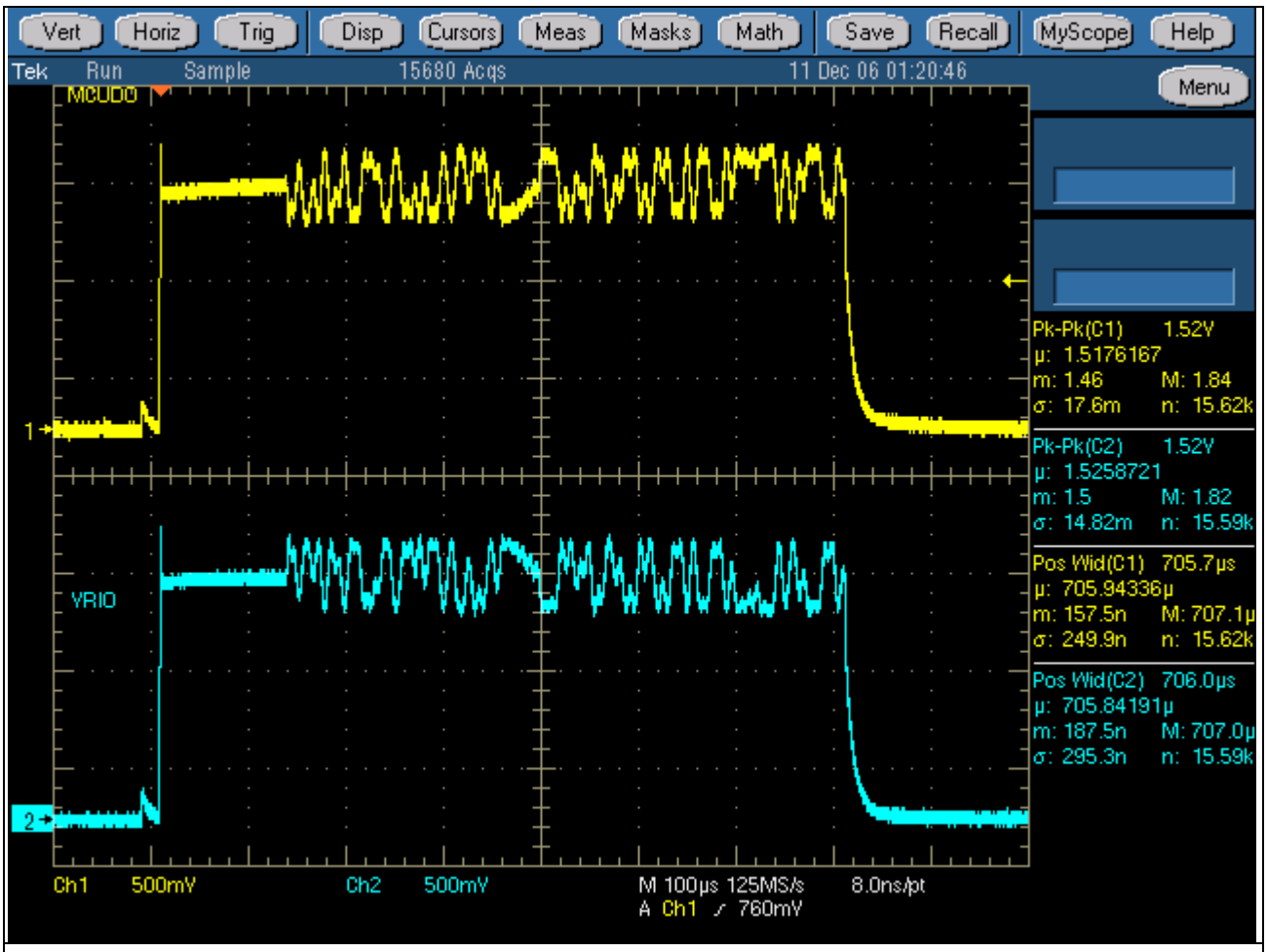



(1) Connect CON702 to instrument with RF adapter and coaxial cable;
(2) Measure two signals from both sides of C770.

It’s possible to probe these two waves without Agilent 8960; only make phone under RX mode, and then probe both sides of C770 .

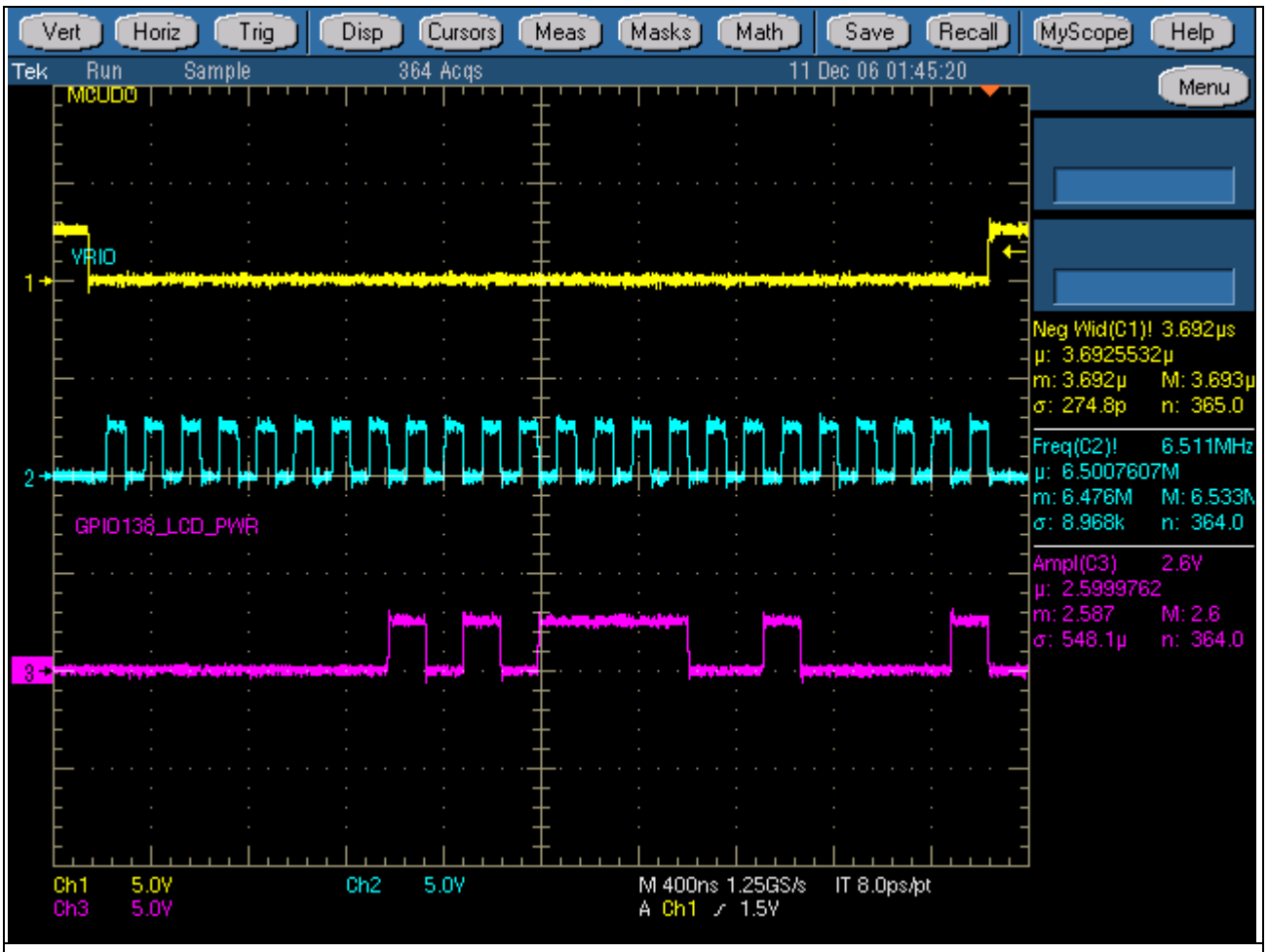



Set “Gain” to 74.



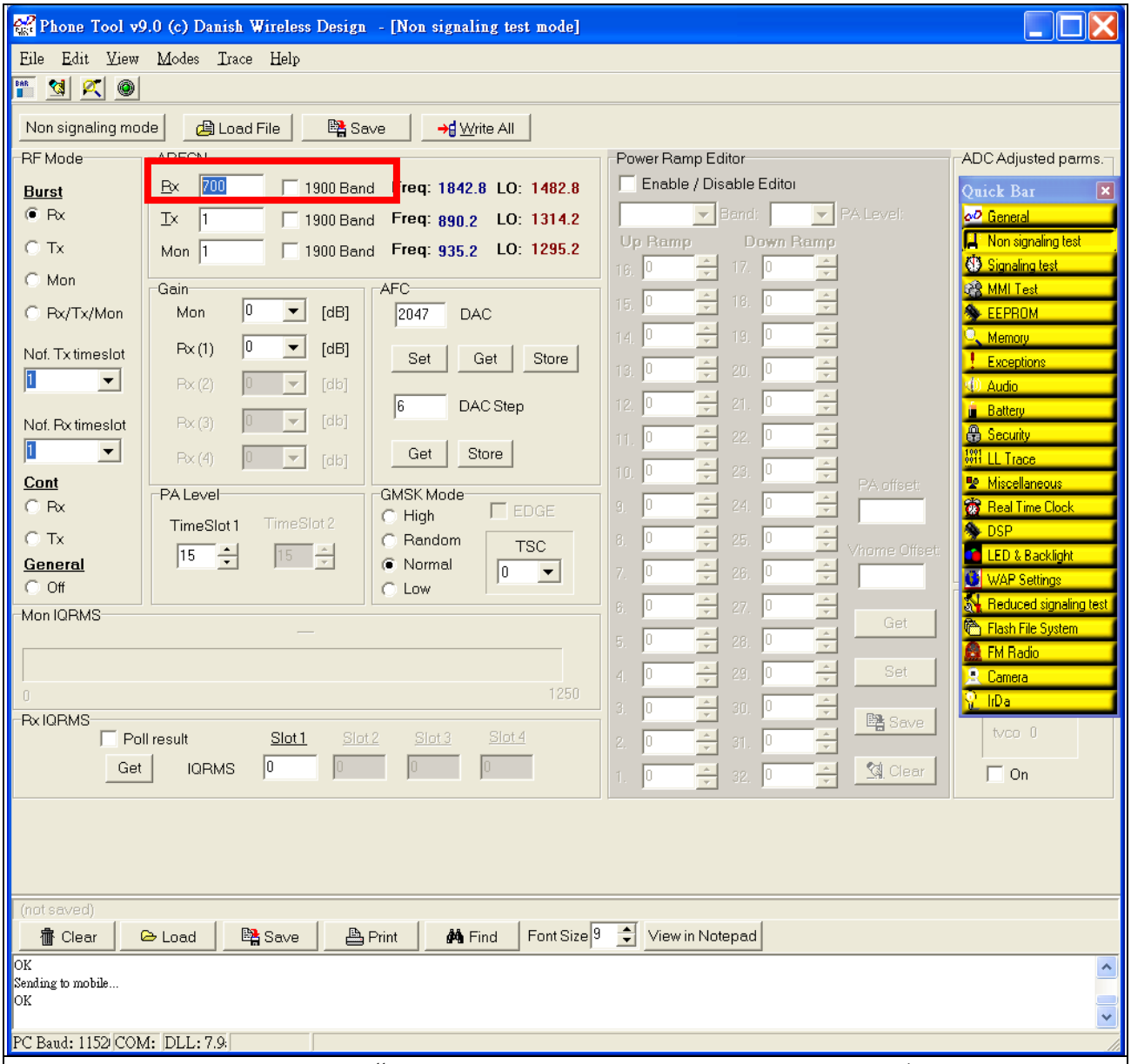

(1) Connect CON702 to instrument with RF adapter and coaxial cable;
(2) Waveforms from both sides of C770 are showed above

Phone needs to receiver signals from Agilent 8960, and then both waveforms from C770 will be like the graph showed as above.

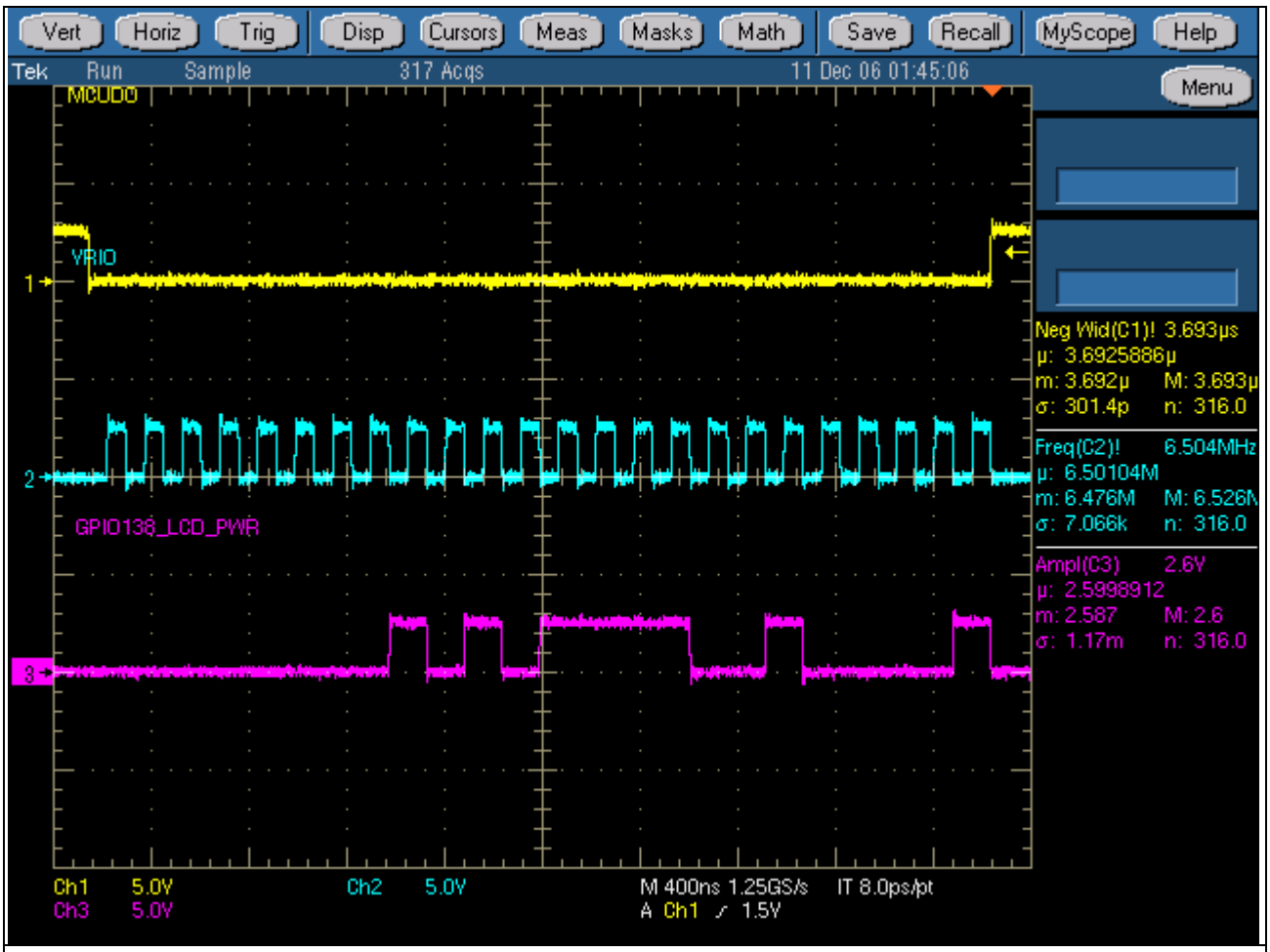



Waveform of each pin 1 of C773, C772, and C774 is showed above

Agilent 8960 doesn’t need when probing these hree signals.

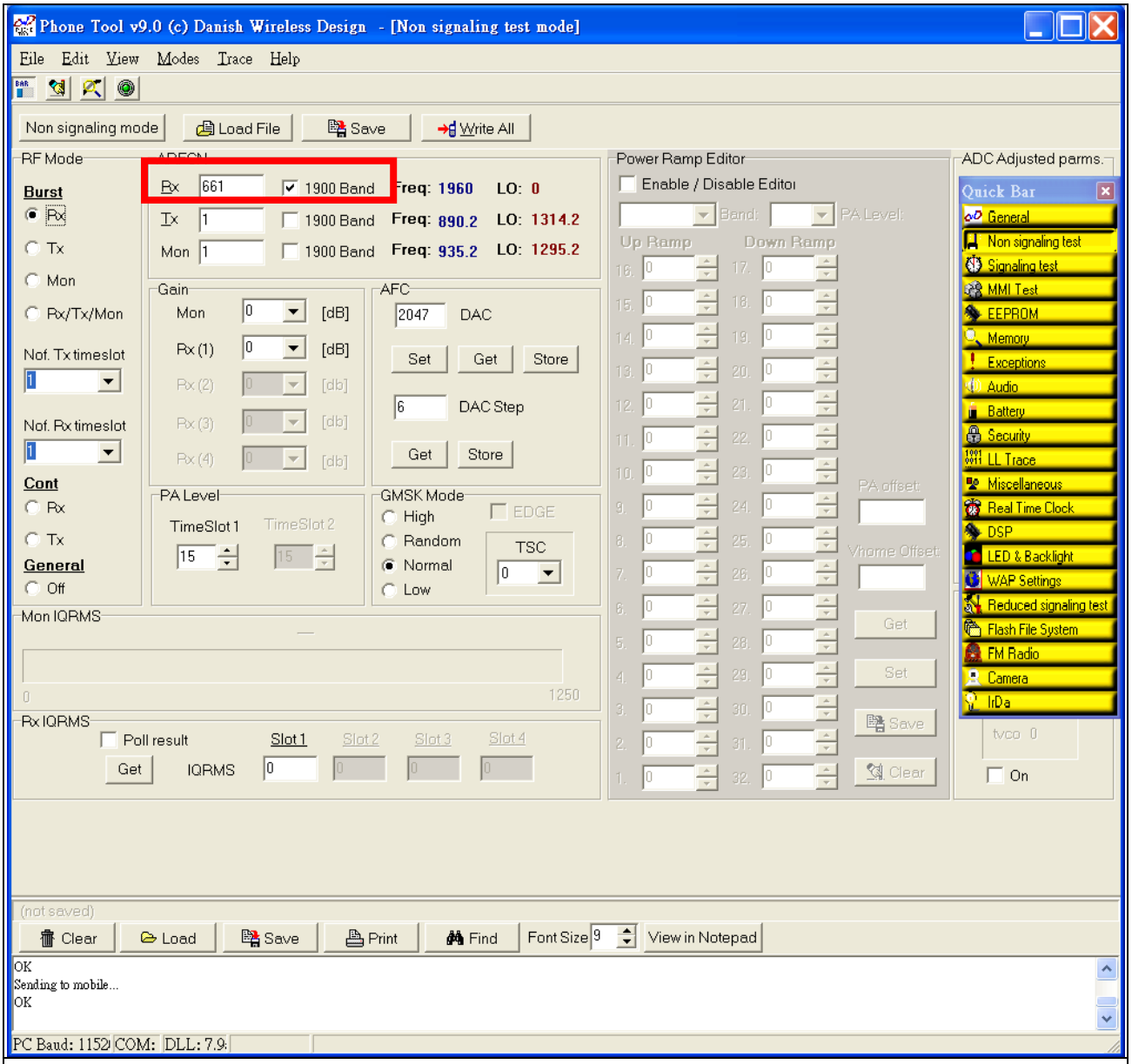



Repeat foregoing “EGSM900/DCS1800/PCS1900 RX (Non-signaling Mode)” step; Only set up Phone Tool to DCS AFRCN 700 (RX)。

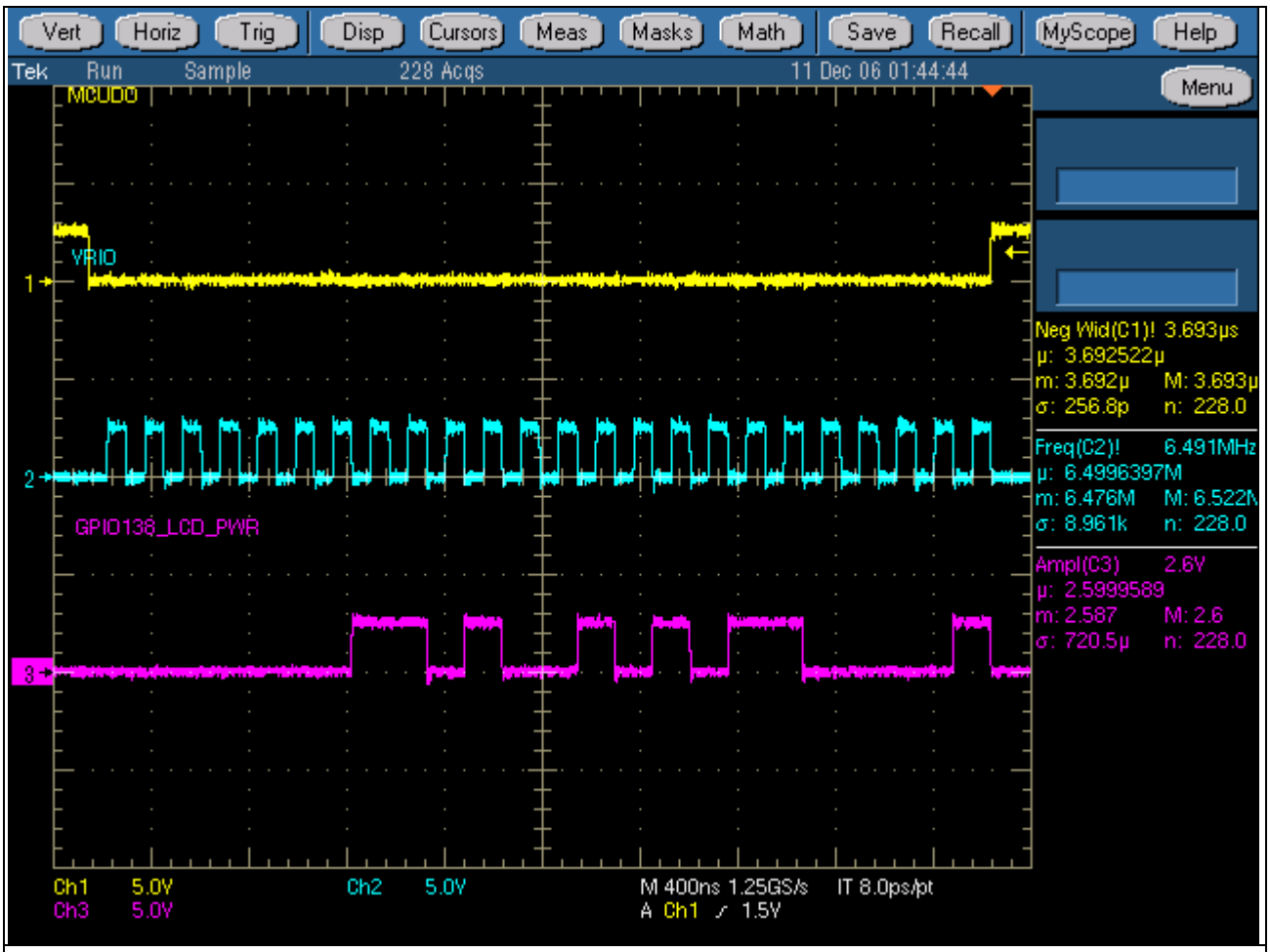



Waveform of each Pin 1 of C773, C772, and C774 的 Pin is showed above.

Agilent 8960 doesn’ t need when probing these signals.

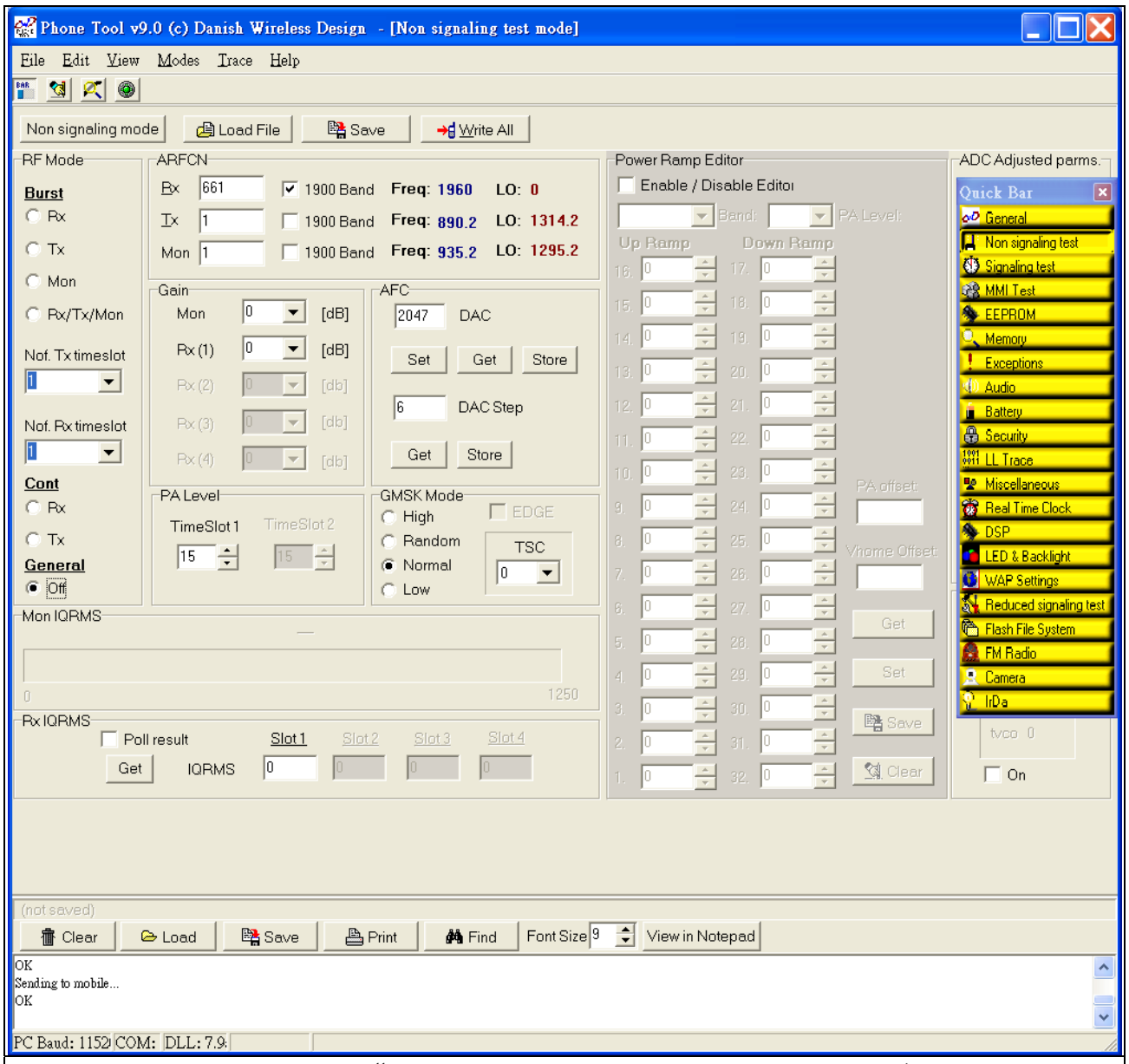



Repeat foregoing “EGSM900/DCS1800/PCS1900 RX (Non-signaling Mode)” step; Only set up Phone Tool to PCS AFRCN 661 (RX).

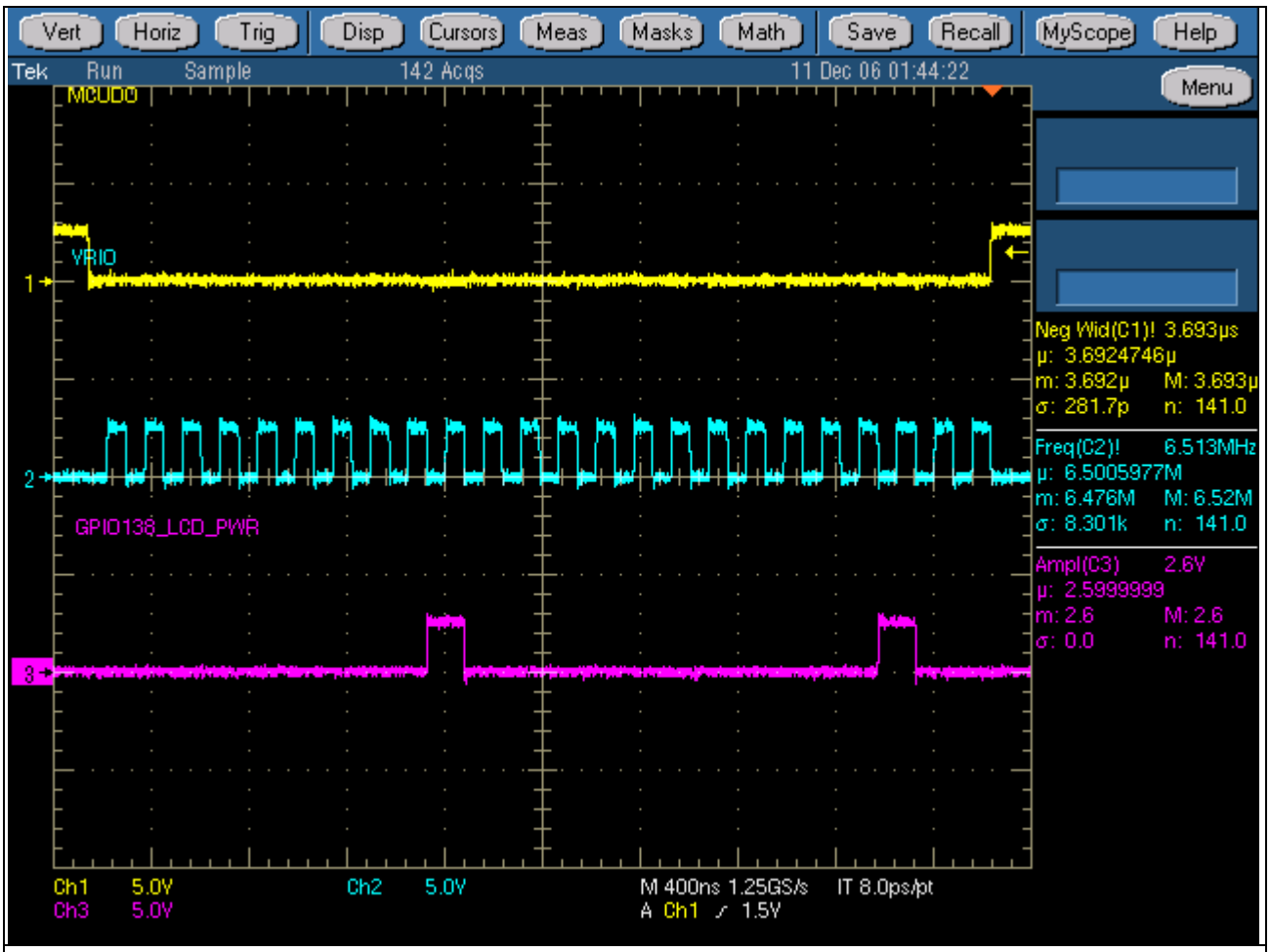



Waveform of each Pin 1 of C773, C772, and C774 is showed as above.

Agilent 8960 doesn’t need when probing these signals.



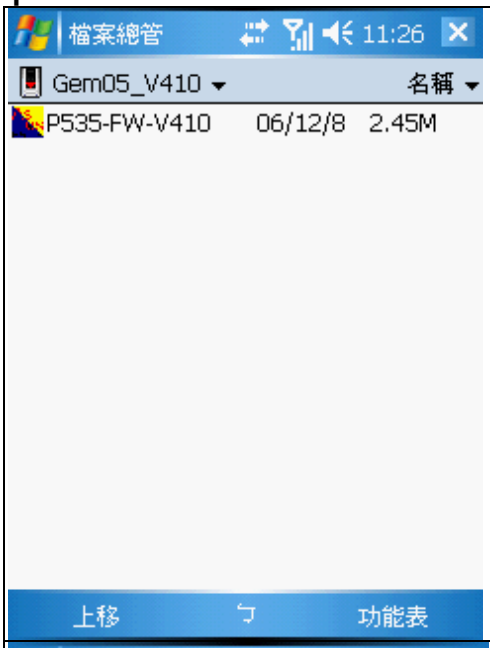
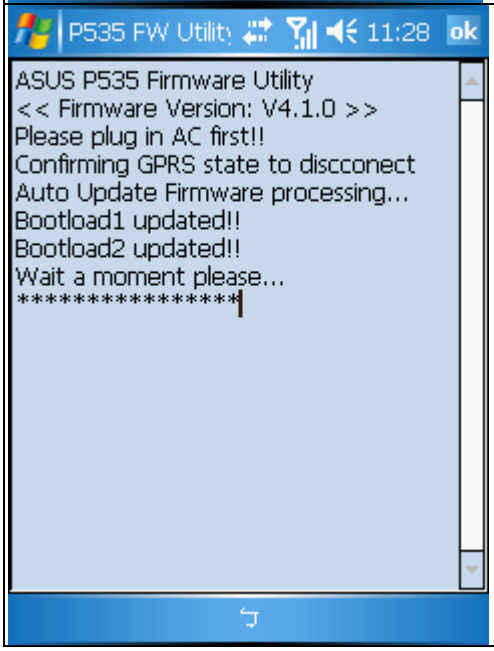

Repeat foregoing “EGSM900/DCS1800/PCS1900 RX (Non-signaling Mode)” step; Only set up RF mode of Phone Tool to “OFF”.

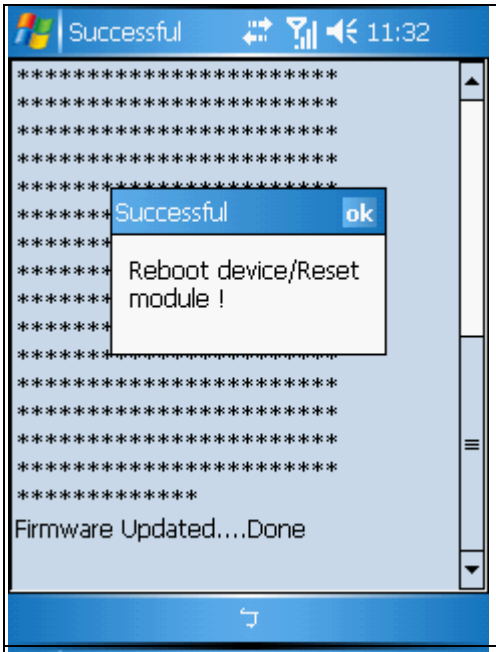
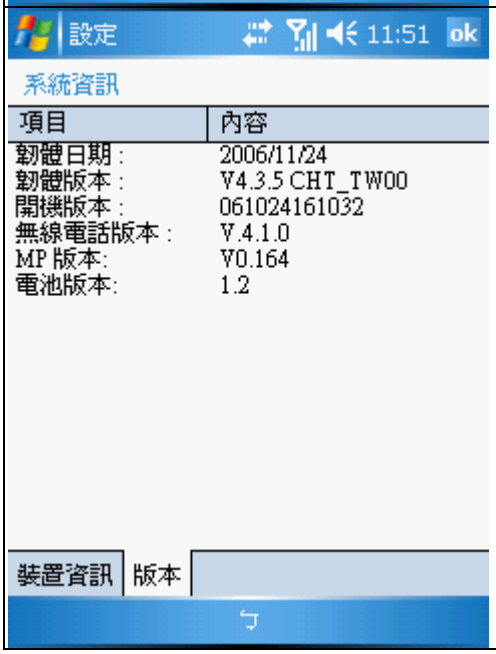



Waveform of each Pin 1 of C773, C772, and C774 is showed as above.

Agilent 8960 doesn’t need when probing these signals.

# 12.Update Radio Firmware

| | |
|---|---|
|  | Insert the Mini-SD with updating-P535 firmware; Then execute it. |
|  | 1. Firmware updated is showed; Notice if the firmware version is correct or not. This picture take V4.1.0 for example.<br><br>2. Please plug in a charger when updating firmware. Program won't start without the charger inserted.<br><br>3. When updating firmware is on going, it will continuously show "*"; Don't turn off the power or reset phone. |

| | |
|---|---|
|  | After updating firmware, click ”ok”, and then the system will re-start. |
|  | After updating, please click followings.<br>1. “Stare”<br>2. “Setting up”<br>3. “System”<br>4. “System information”<br>5. “Version”<br><br>To check if the version is correct or not. |

# 13.GPS Repair

## 13.1 Purpose :

This document is provided for service team debugging P535 GPS.

## 13.2 Required Facilities

### 13.2.1 Software :

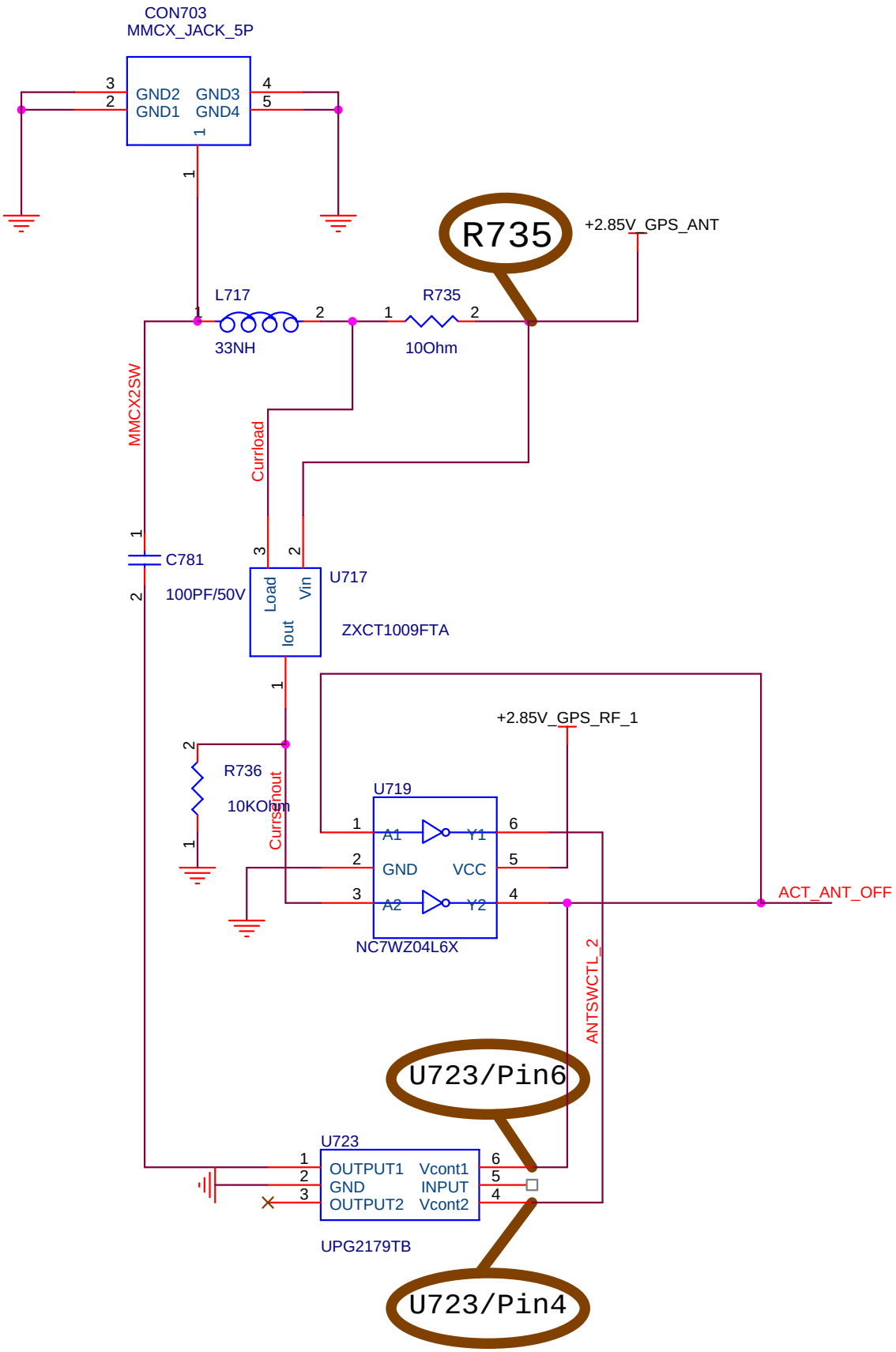
SiRFDemoPPC
GPS Firmware: GSW3.2.2 or Latest Version

### 13.2.2 Hardware :

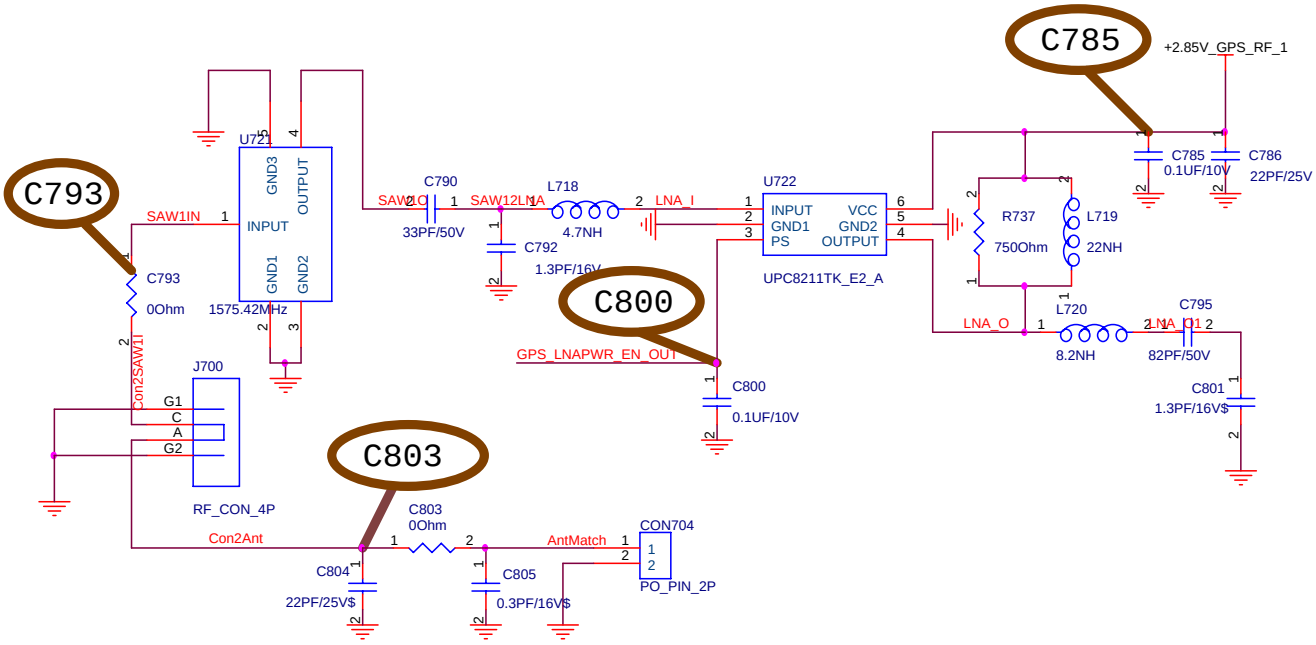
Active Antenna
Oscilloscope
GPS Signal Generator
Digital Multimeter

# 13.4 Test-points

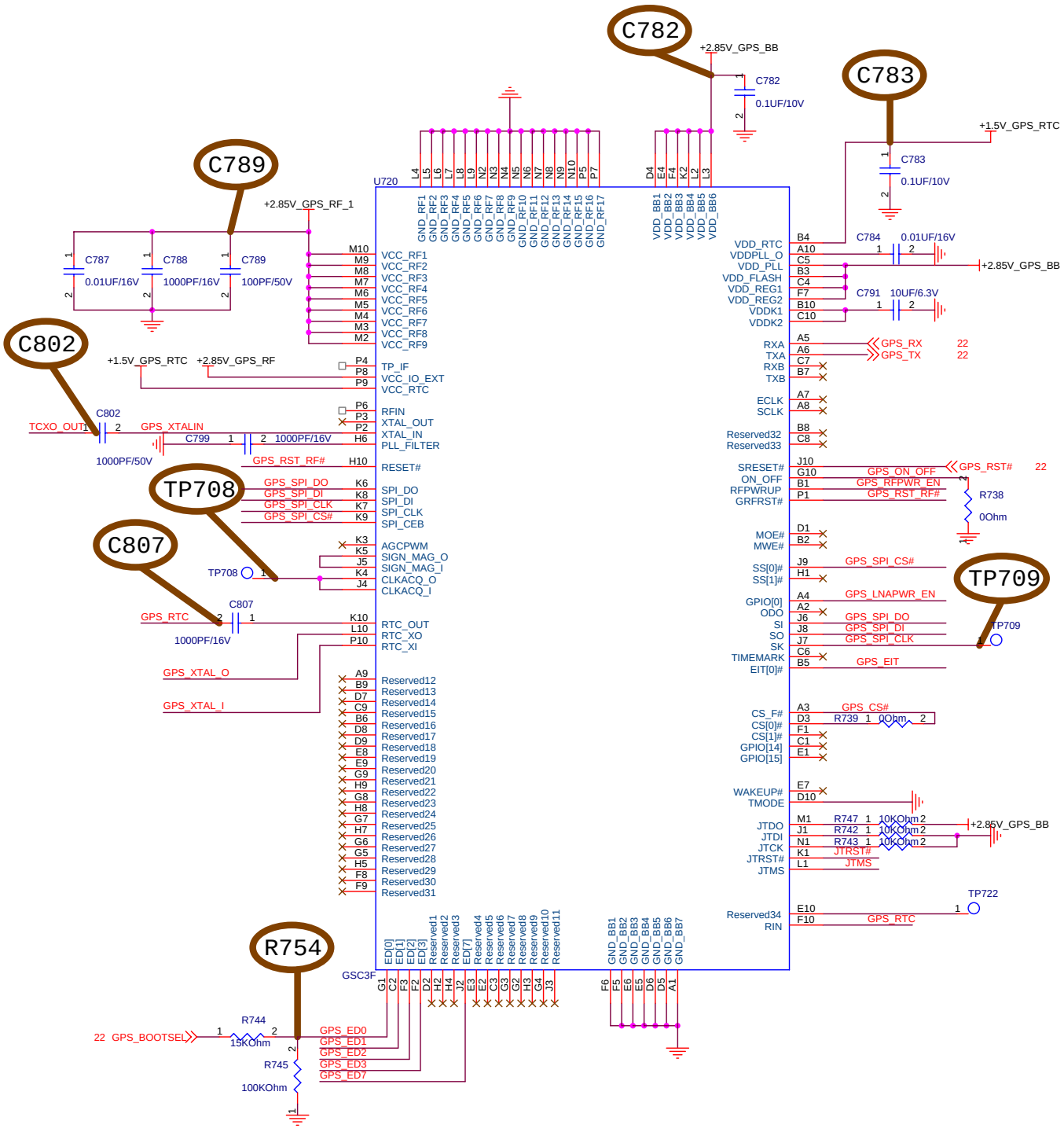
## 13.4.1 Active Path Test points



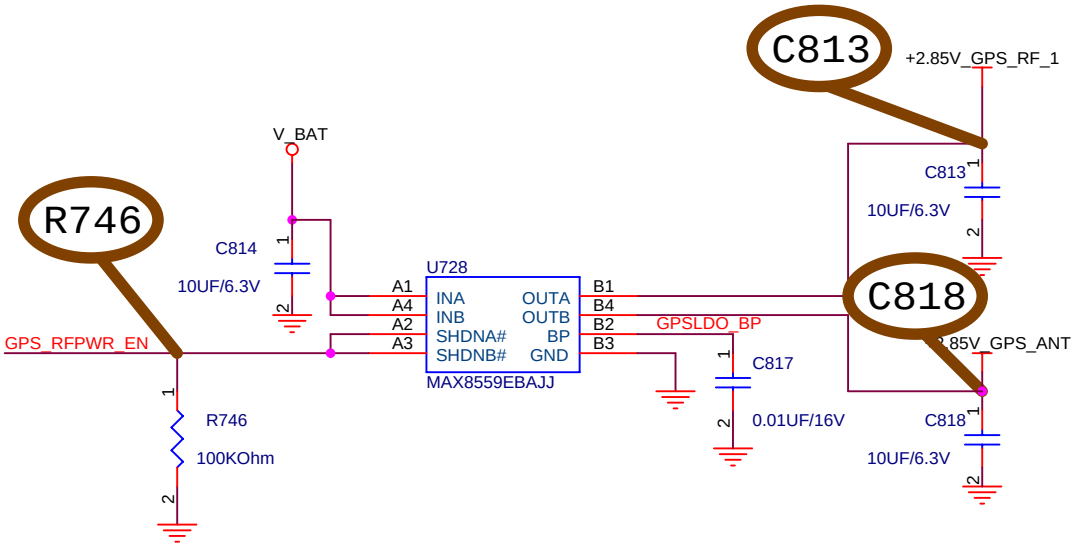
## 13.4.2 Passive Path Test points

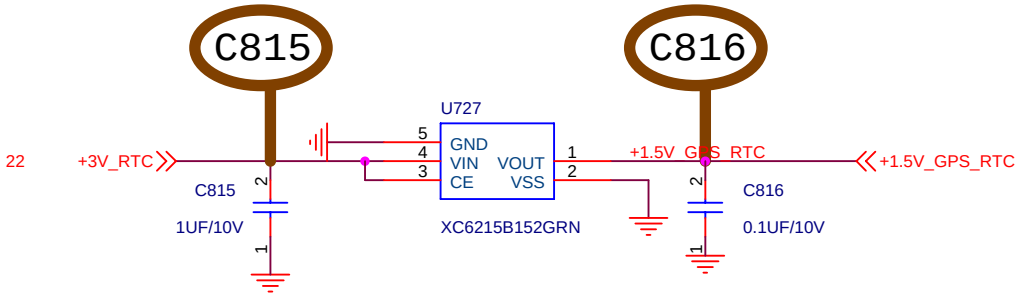


## 13.4.3 SiRF StarIII Testpoints

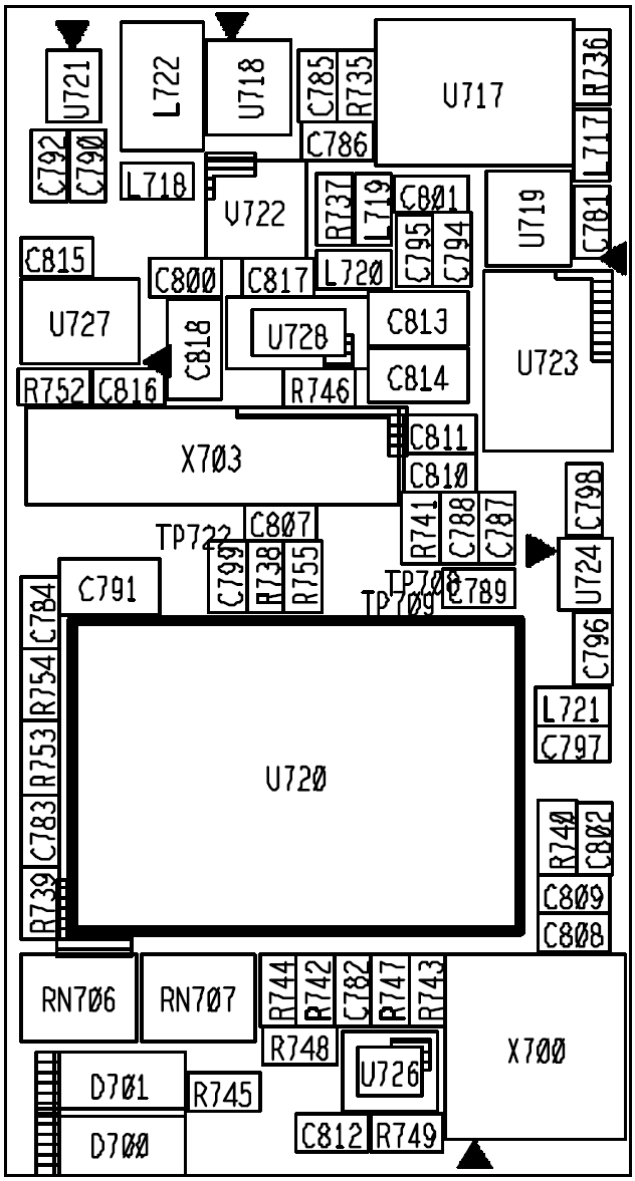


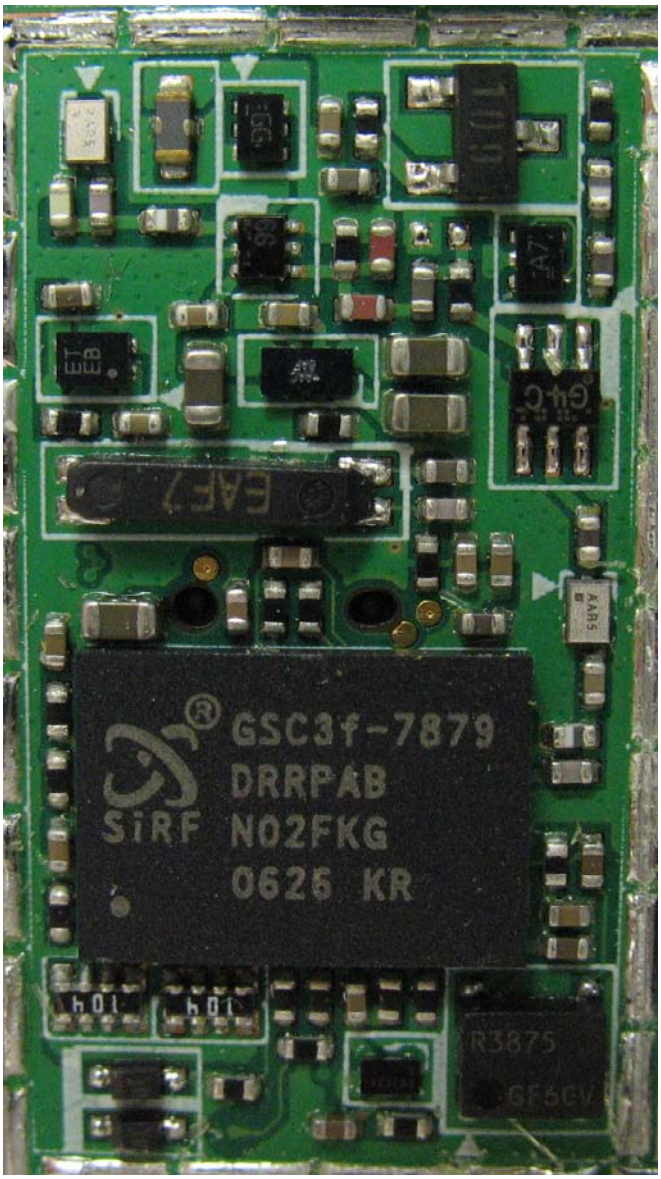
## 13.4.4 Power Part Testpoints



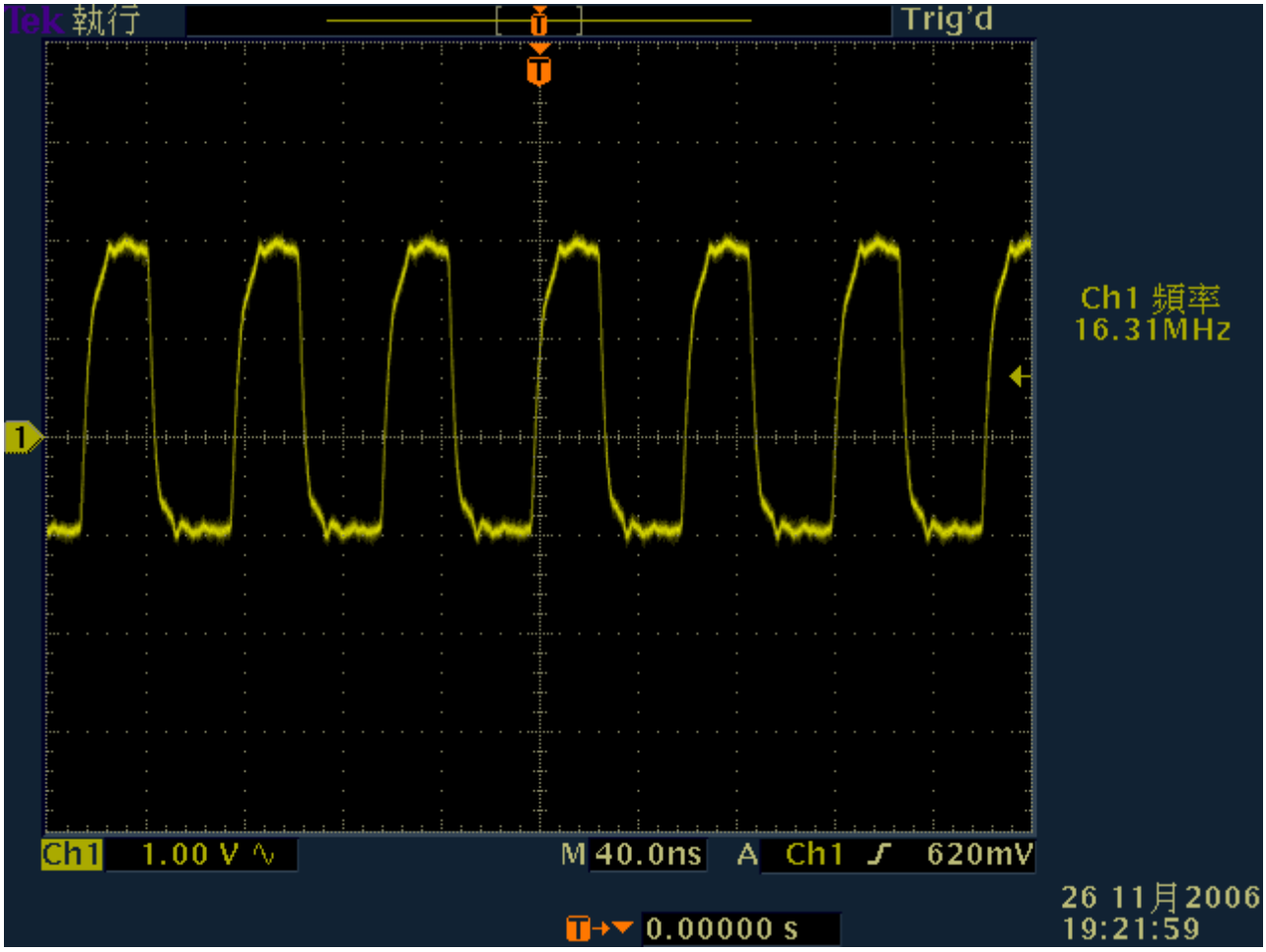
# 15.GPS Component Locations



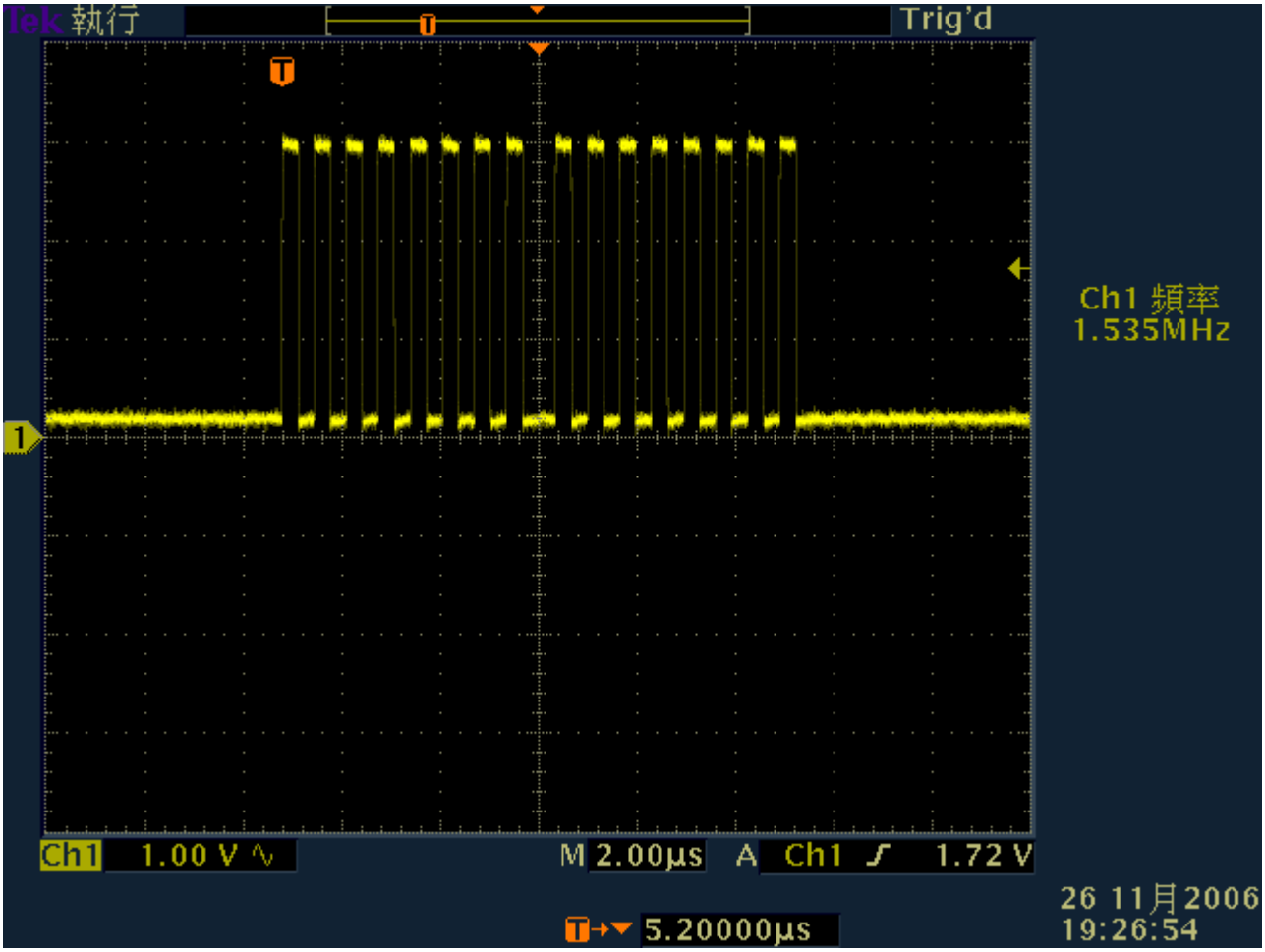



# 16.GPS Testing Graphs about Test-Points

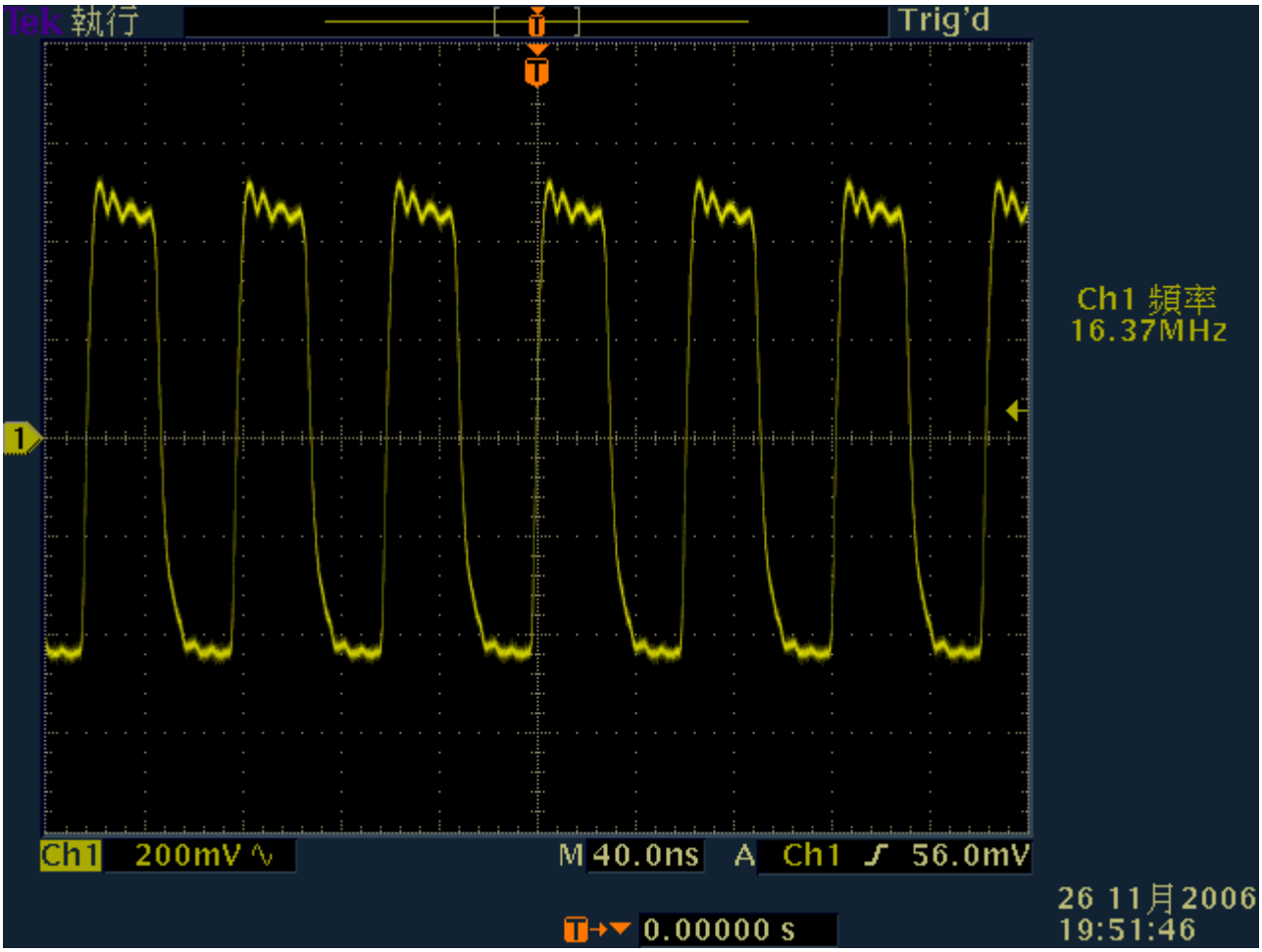
TP708



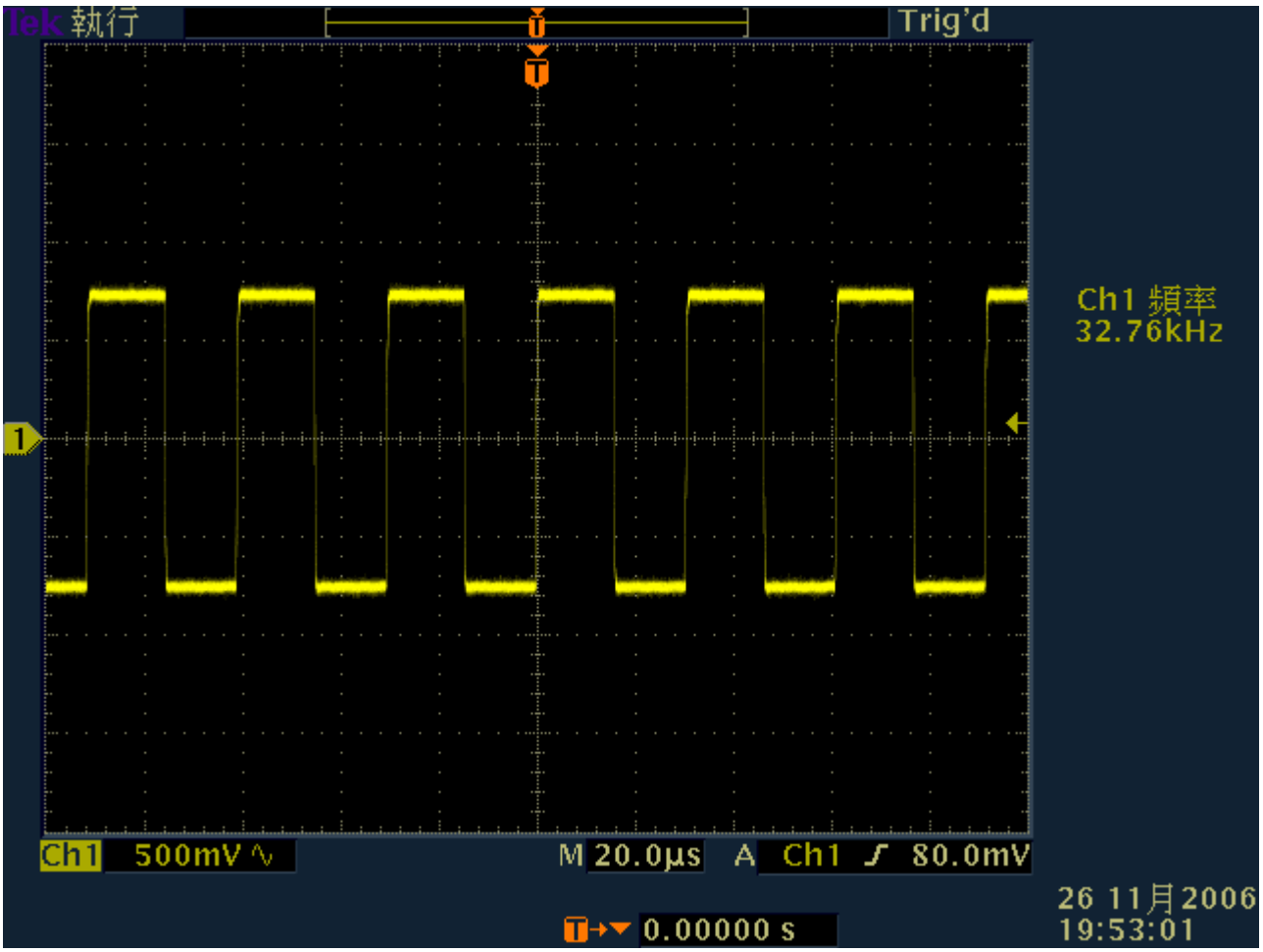
TP709


Tek 執行
Trig'd
Ch1 頻率
1.535MHz
Ch1 1.00 V
M 2.00µs A Ch1 1.72 V
5.20000µs
26 11月2006
19:26:54

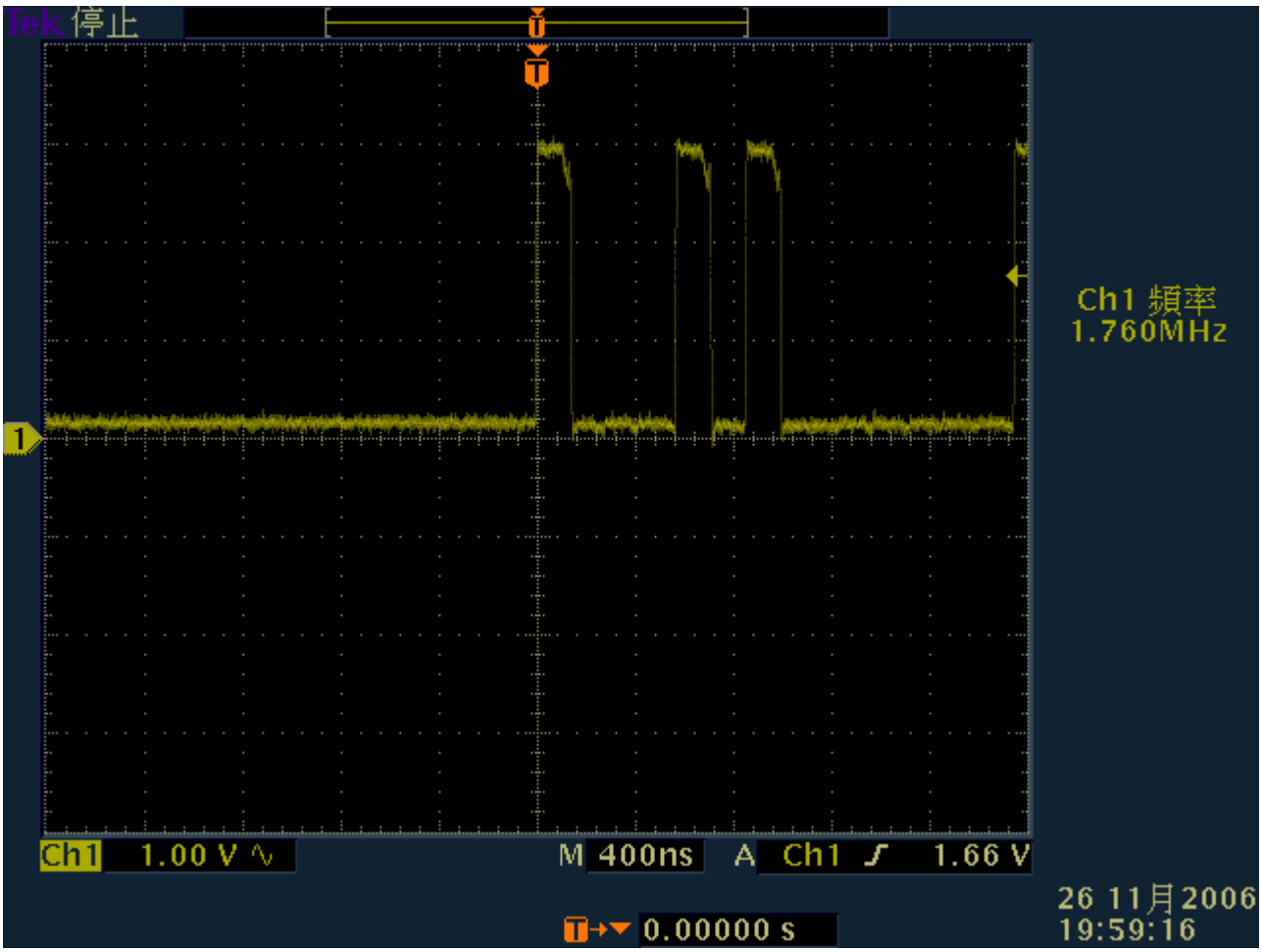
# C802.Pin1


Tek 執行
Trig'd
Ch1 頻率
16.37MHz
Ch1 200mV
M 40.0ns A Ch1 56.0mV
0.00000 s
26 11月2006
19:51:46

C807.Pin2

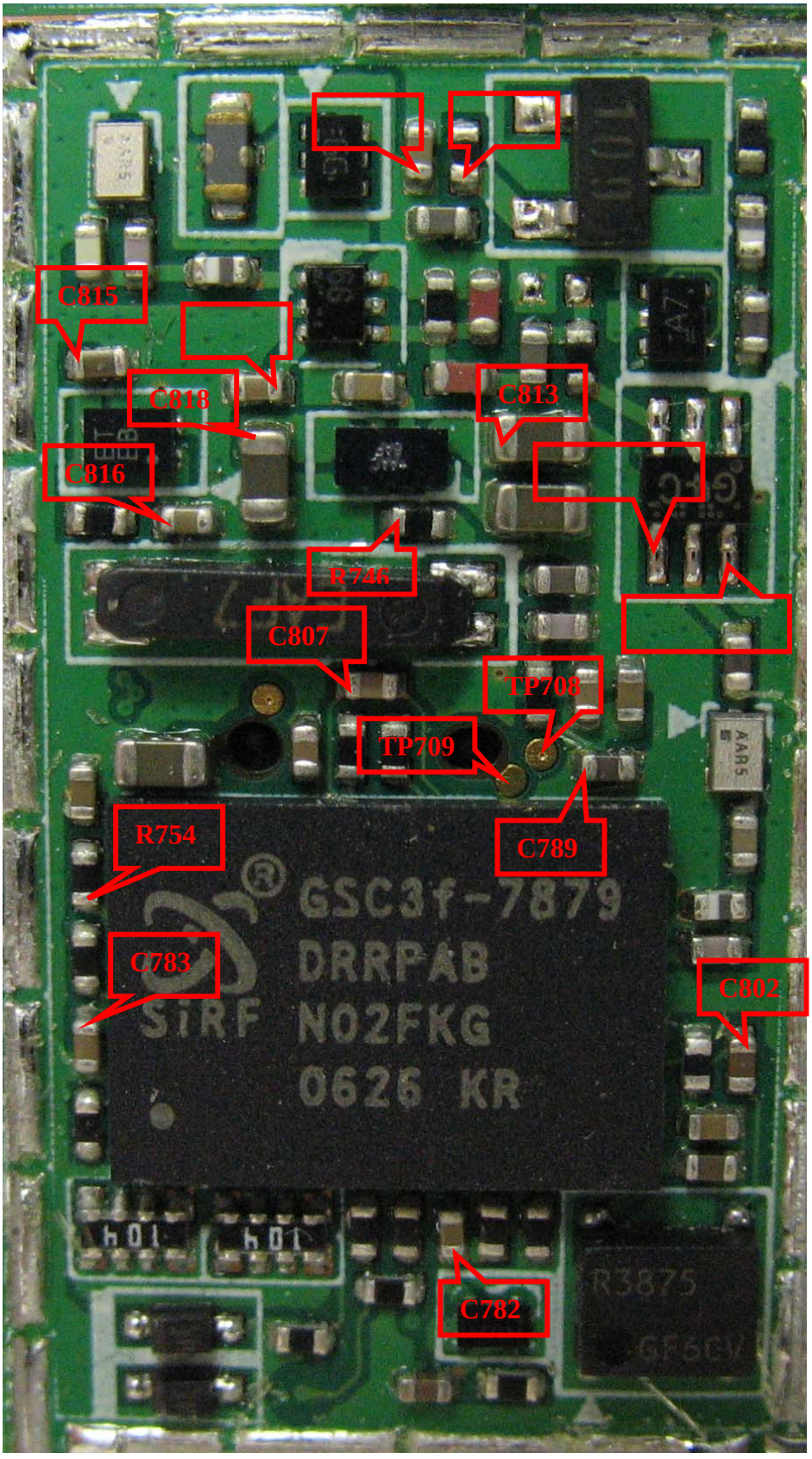

Tek 執行
Trig'd
Ch1 頻率
32.76kHz
Ch1 500mV
M 20.0µs A Ch1 80.0mV
0.00000 s
26 11月2006
19:53:01

# R754.Pin2

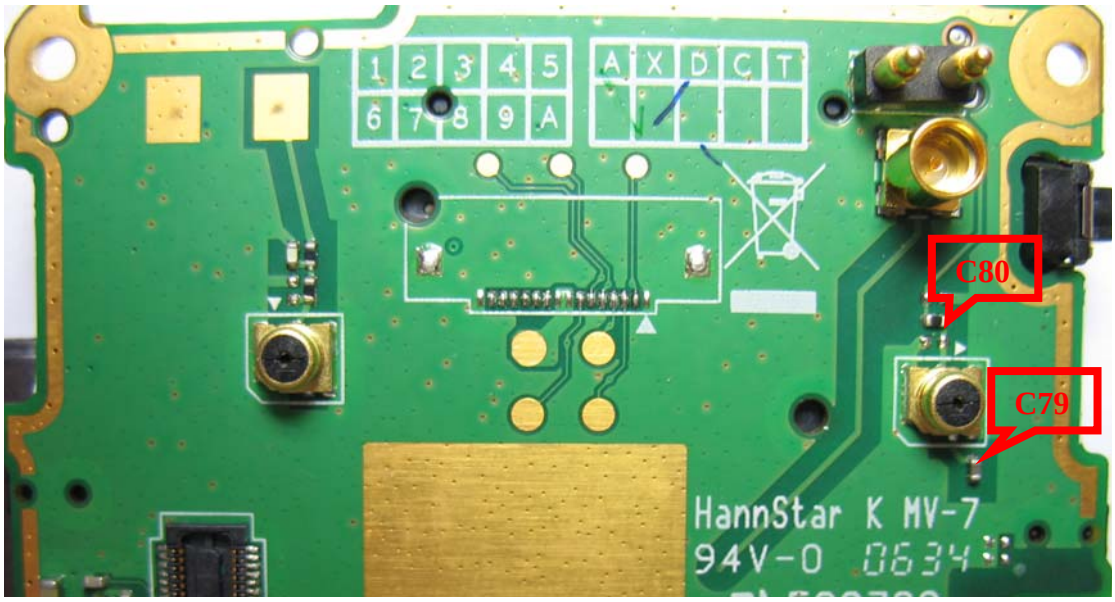

Tek 停止
Ch1 頻率
1.760MHz
Ch1 1.00 V
M 400ns A Ch1 1.66 V
0.00000 s
26 11月2006
19:59:16

# 17、Locations about test-points of components

TOP Side



# Bottom Side



# 18.GPS Debug Flow

GPS debug is divided into 6 steps, and each step depends on "SiRF Demo PPC". (Notice: After debug, must make device return to NMEA-form (switch to NMEA) by "SIRFDemoPPC".[Appendix A] [Appendix C].

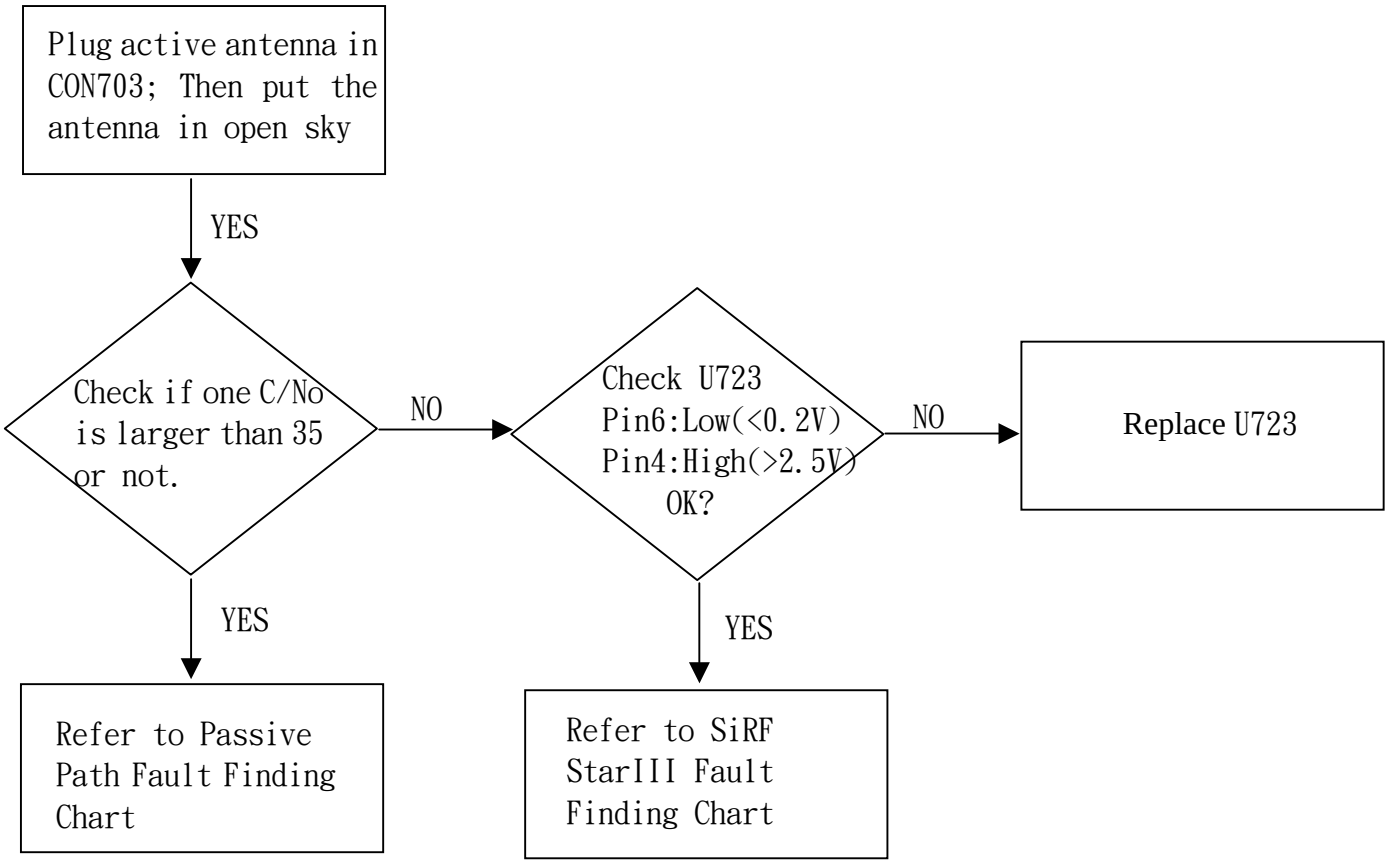
## 18.1 Confirm :

if GPS device is under [Port:COM2][Baud Rate:4800] by "SiRFDemoPPC"; Then check fixing-position function.

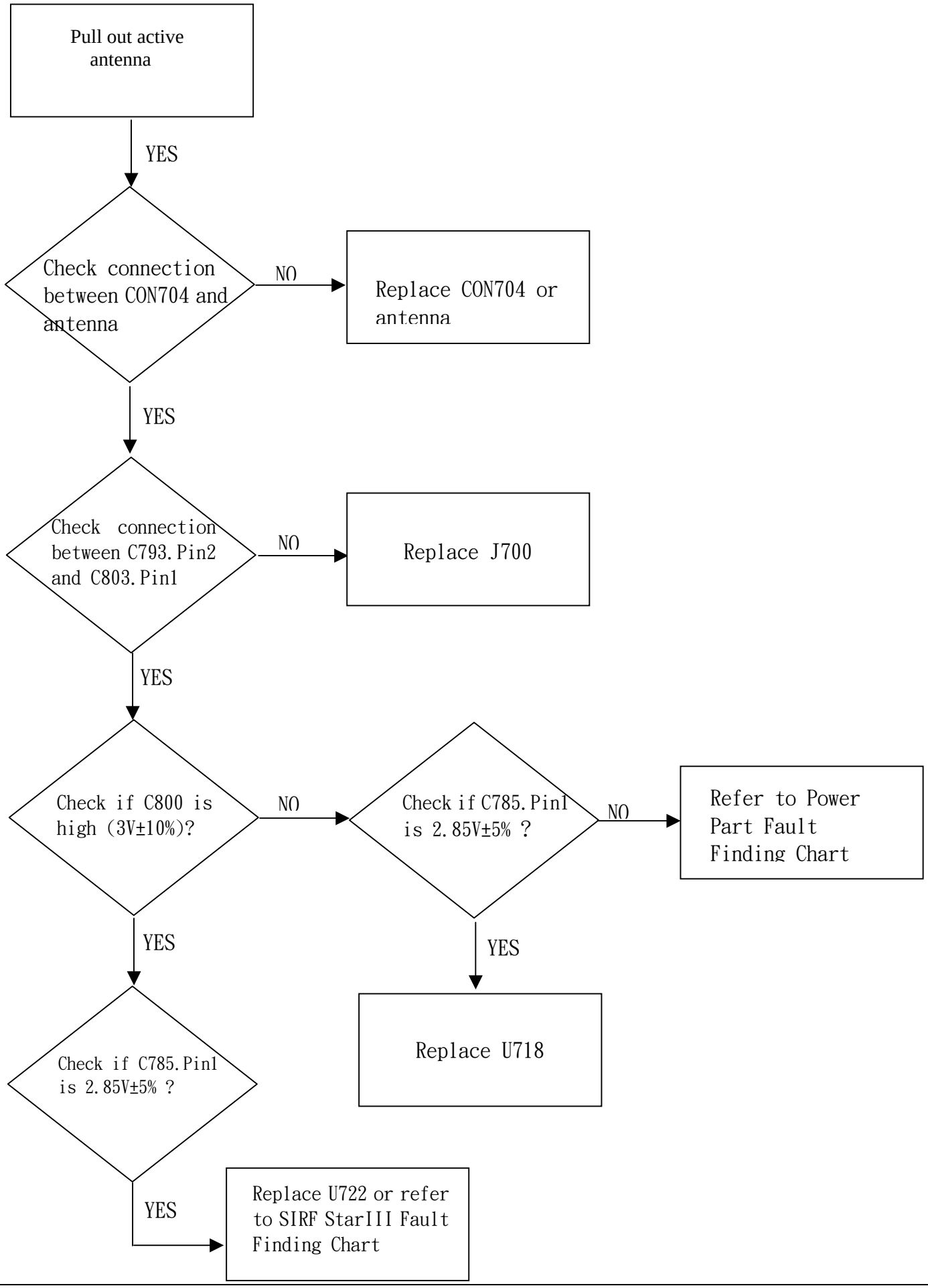
## 18.2 Re-download GPS firmware:

Then re-check fixing-position function by "SiRFDemoPPC"[Appendix B]

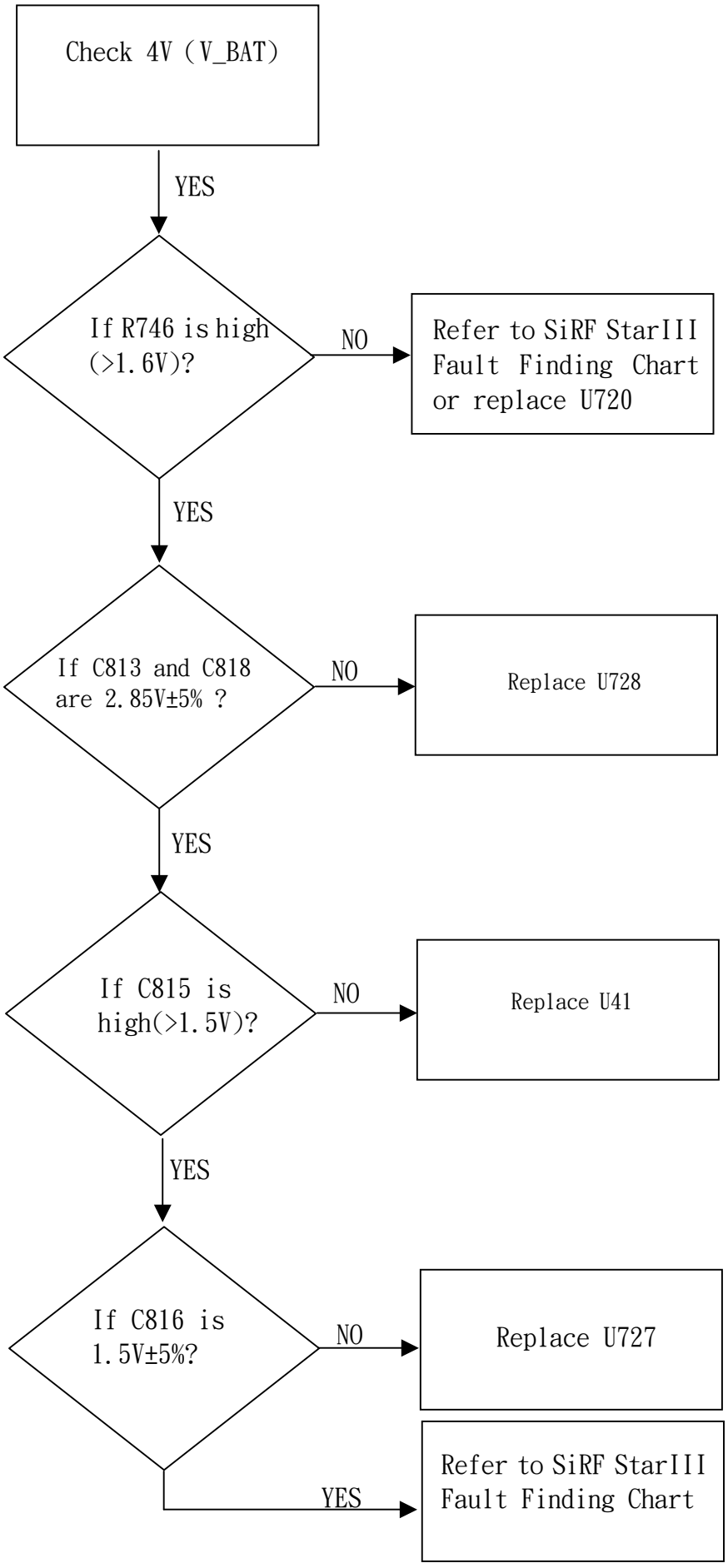
## 18.3 Active Path Fault Finding Chart



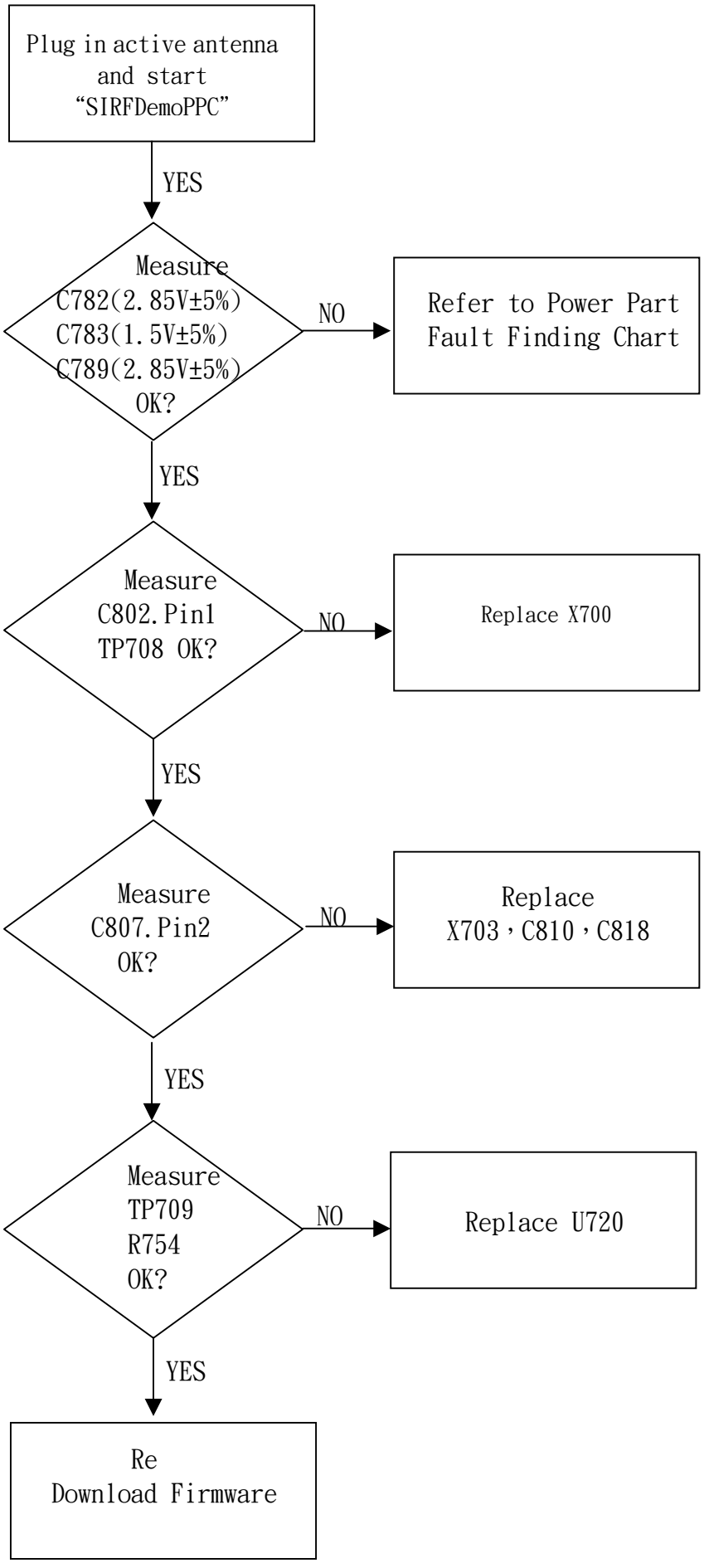
## 18.4 Passive Path Fault Finding Chart



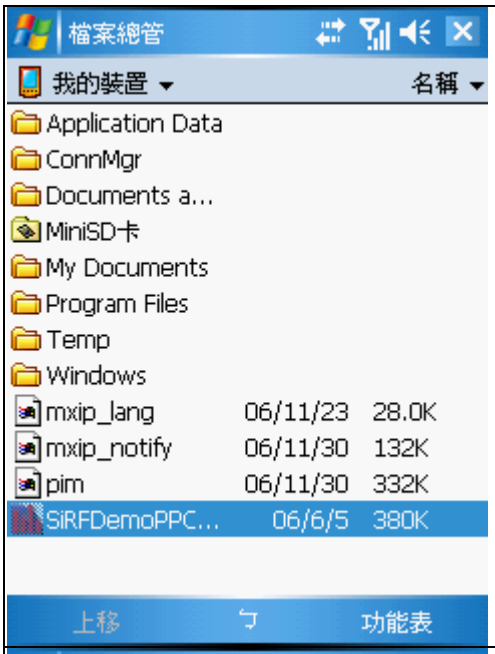
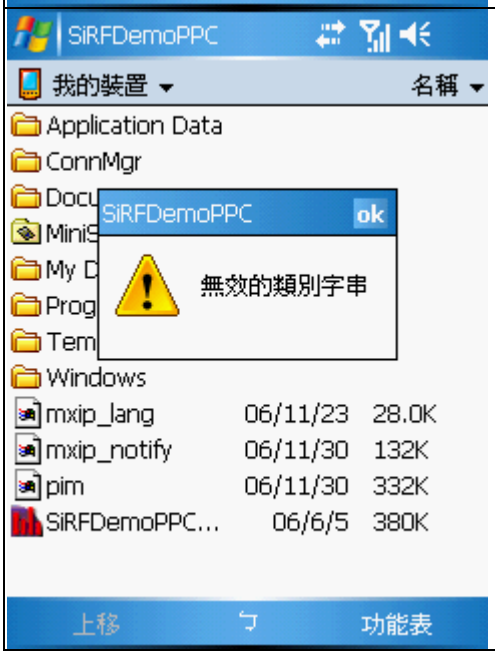
## 18.5 Power Part Fault Finding Chart

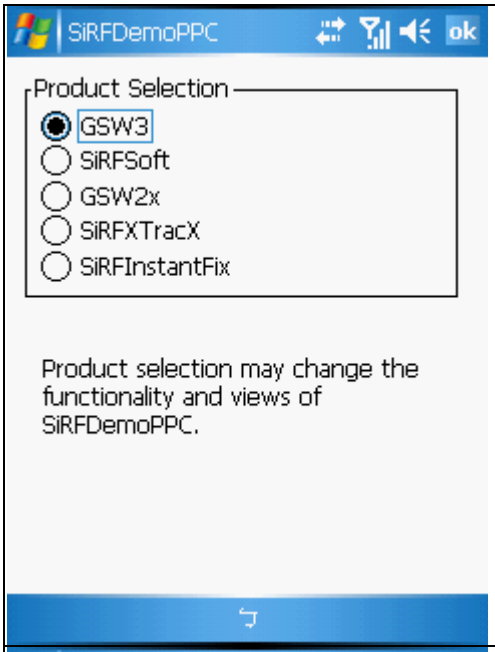
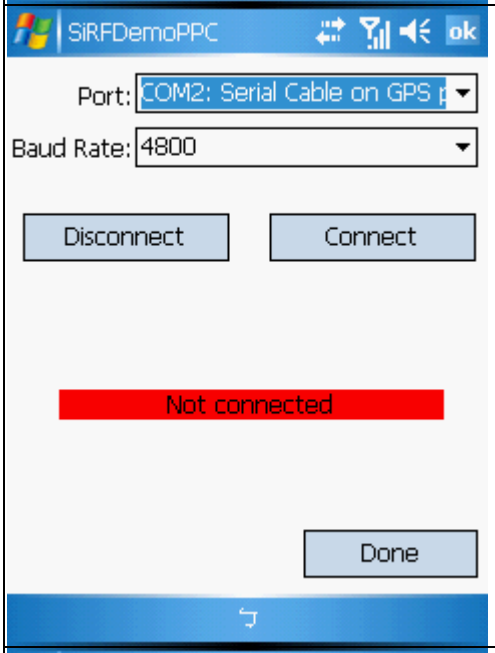
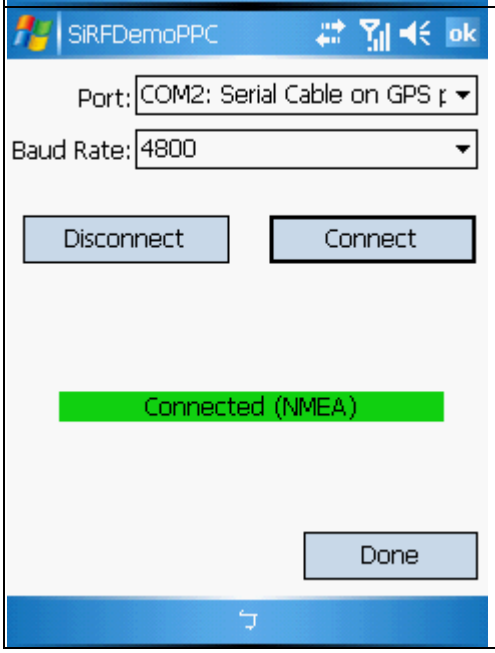


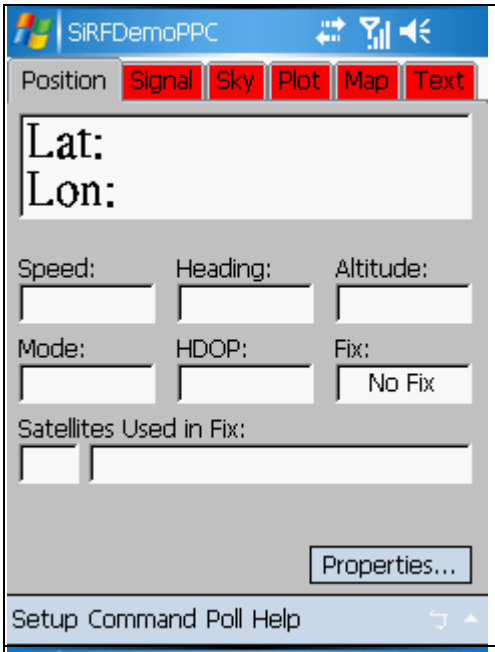
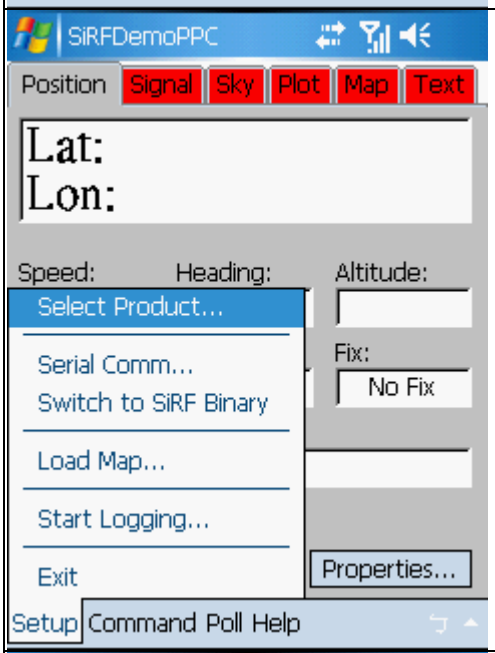
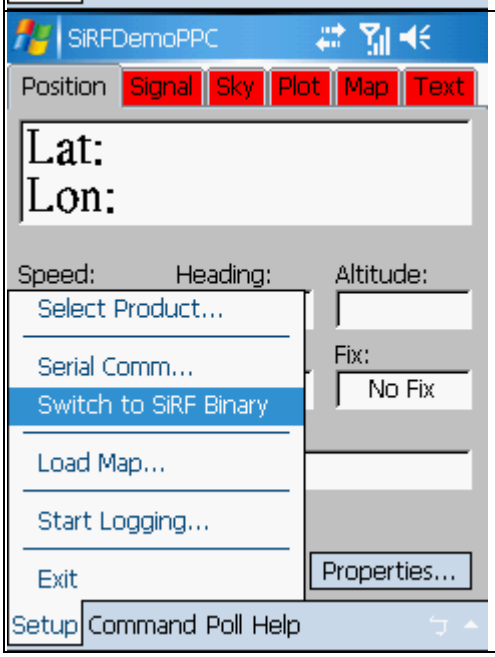
## 18.6 SiRF StarIII Fault Finding Chart

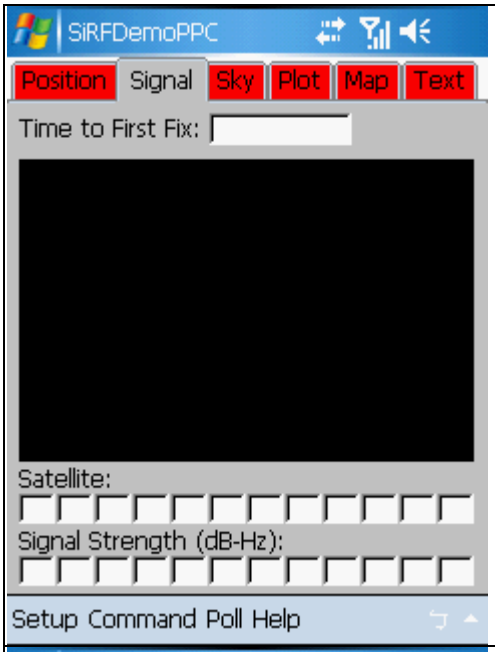
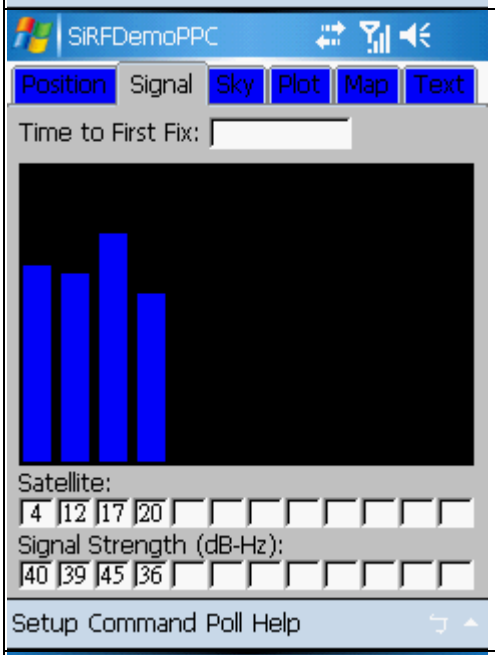
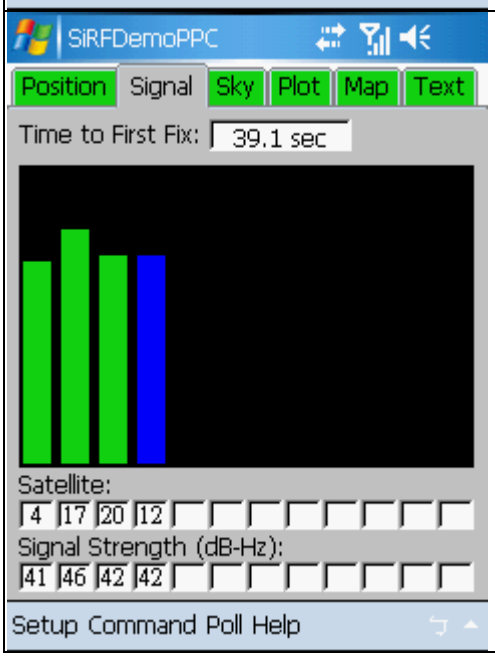


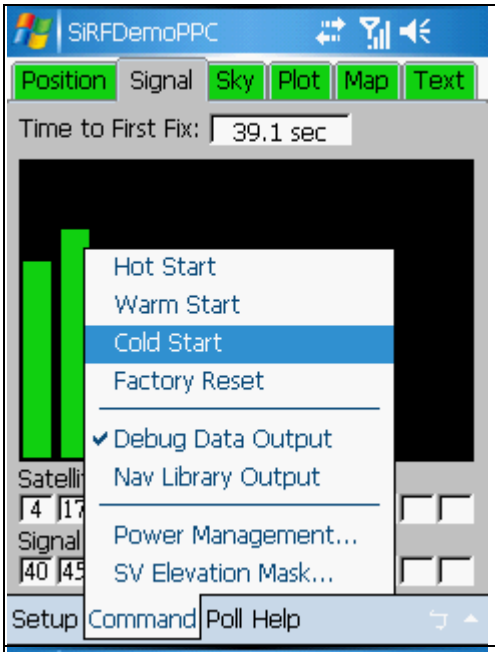
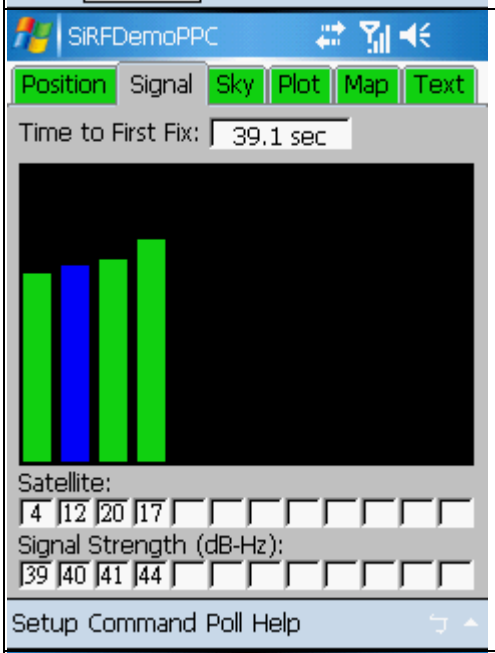
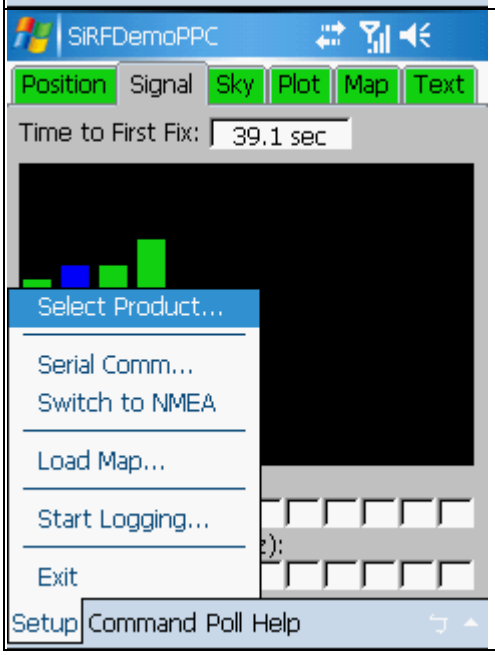
# Appendix A:

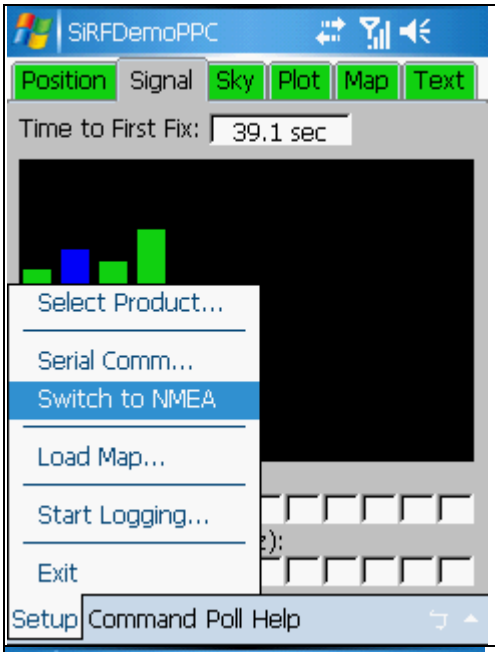
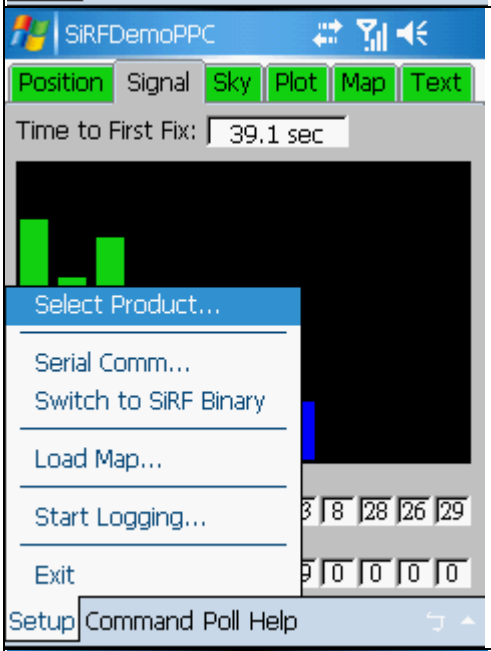
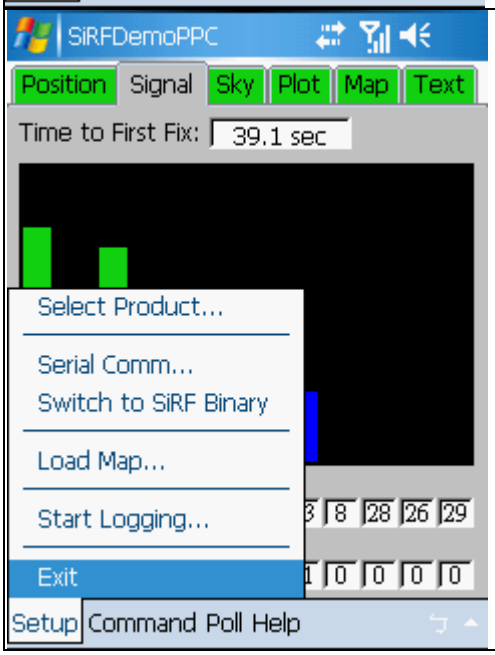
| | |
|---|---|
|  | Put ” SIRFDemoPPC” into SD card. |
|  | 1.Click [SiRFDemoPPC]<br>2.Click [OK] |

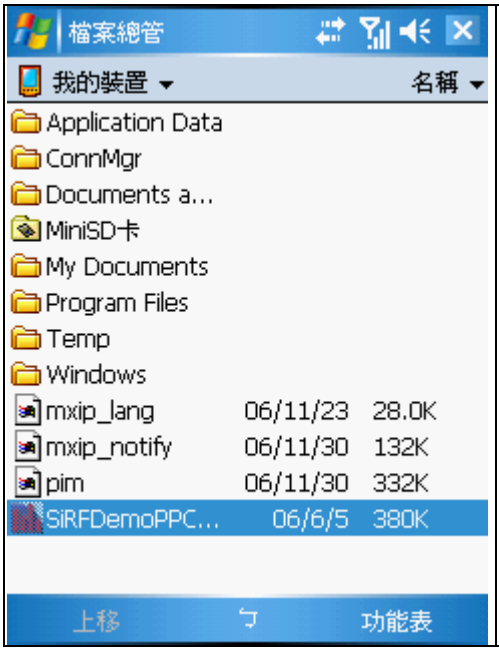
| | |
|---|---|
|  | 1.Click [OK] |
|  | 1.Click [Connect] |
|  | 1.Click[Done] |

| | |
|---|---|
|  | SiRFDemoPPC main window |
|  | 1.Click [Setup] |
|  | 1.Click [Switch to SiRF Binary] |

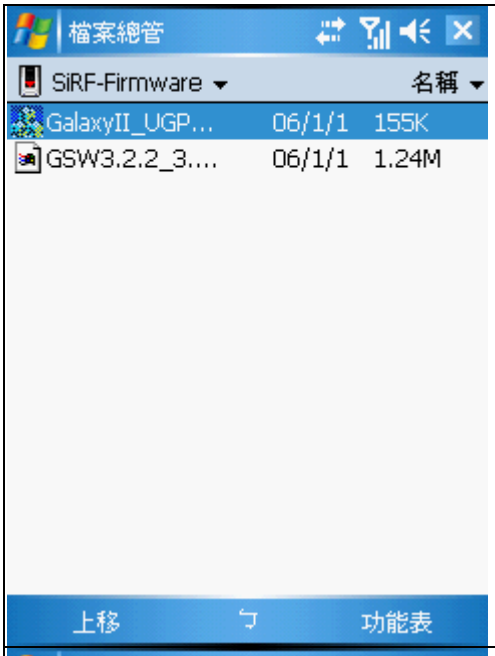
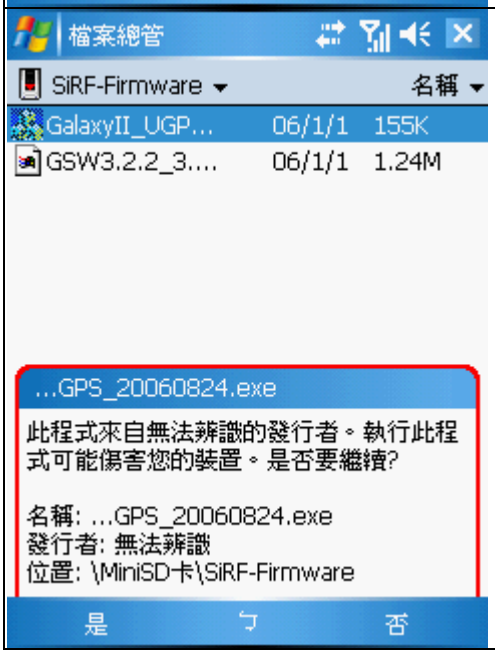
| | |
|---|---|
|  | 1.Click [Signal] |
|  | Device starts to receive GPS signal. |
|  | Time to First Fix：39.1Sec，The fixing-position function is done. |

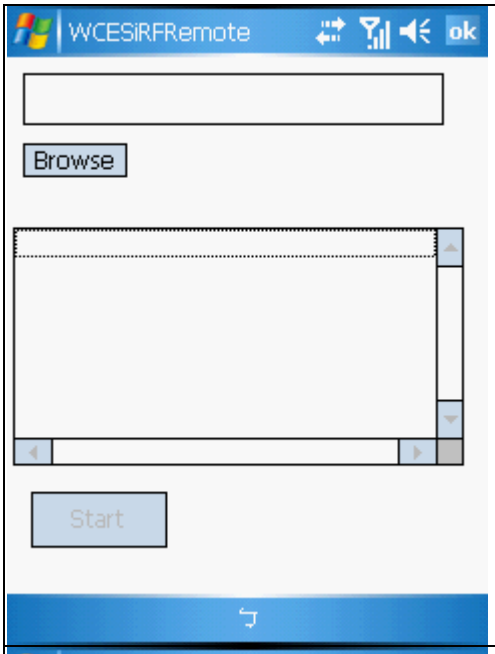
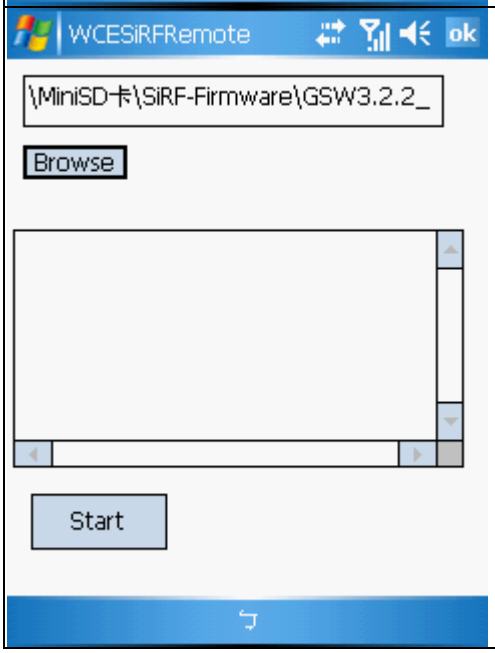
| | |
|---|---|
|  | 1.Click [Command]<br>2.Click [Cold Star]<br>3.Re-fix position |
|  | Re-fixing position function is done |
|  | Finish checking; Depart from SiRFDemoPPC<br>1.Click [Setup] |

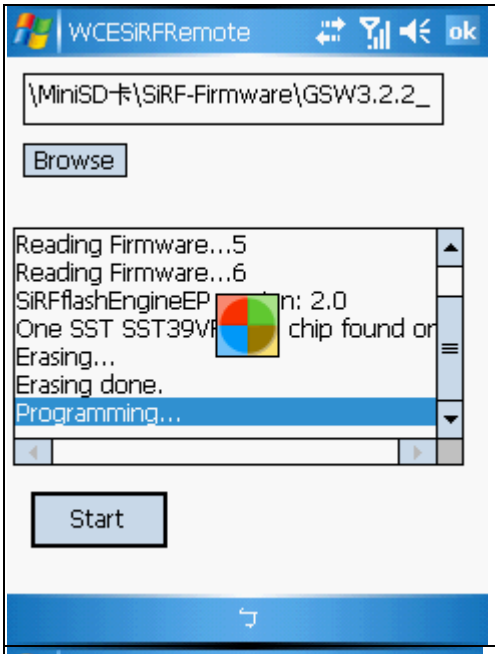
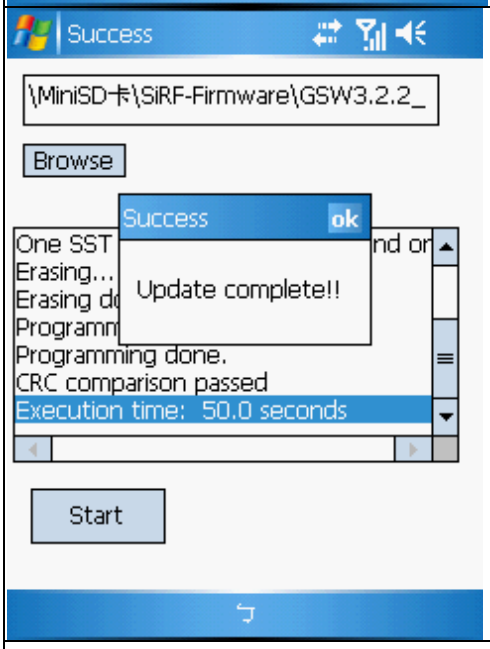
| | |
|---|---|
|  | 1.Click [Switch to NMEA] |
|  | 1.” Switch to SiRF Binary” means switch completely |
|  | 1.Click [Exit] |

| | |
|---|---|
|  | Return original window |

# Appendix B:

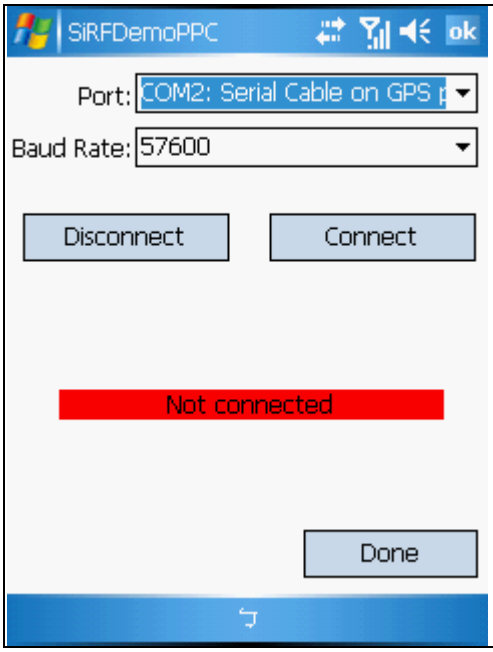
| | |
|---|---|
|  | Put SiRF Firmware in SD Card |
|  | 1.click [GalaxyII_UGPS_20060824.exe] |

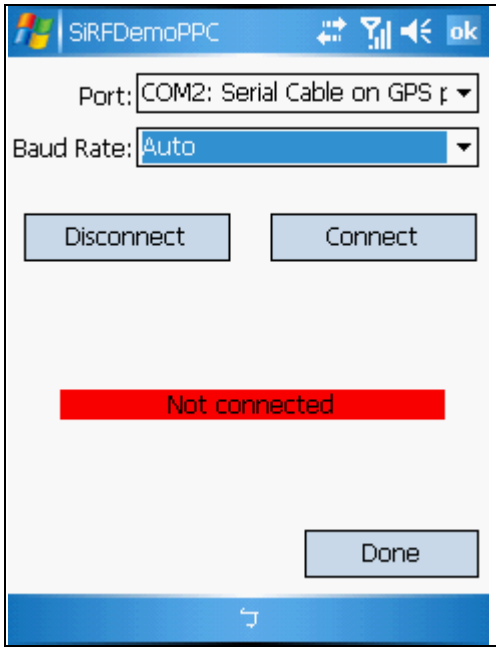
| | |
|---|---|
|  | 1.Click [Browse] |
| | 1.Click [GSW3.2.2_3.1.00.12-SDK003P1.01a 20060809 NMEA4800Static.s] |
|  | 1.Click [Start] |

| | |
|---|---|
|  | Stare to update GPS firmware |
|  | Update successfully. |
| | Re-boot |

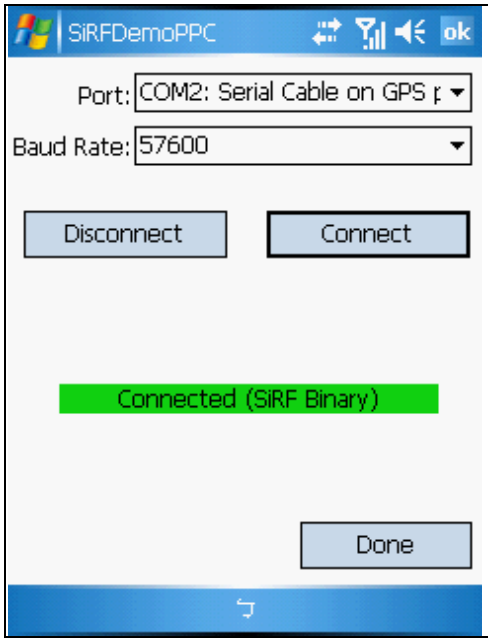
| | |
|---|---|
| | Finish update. |

# Appendix C:

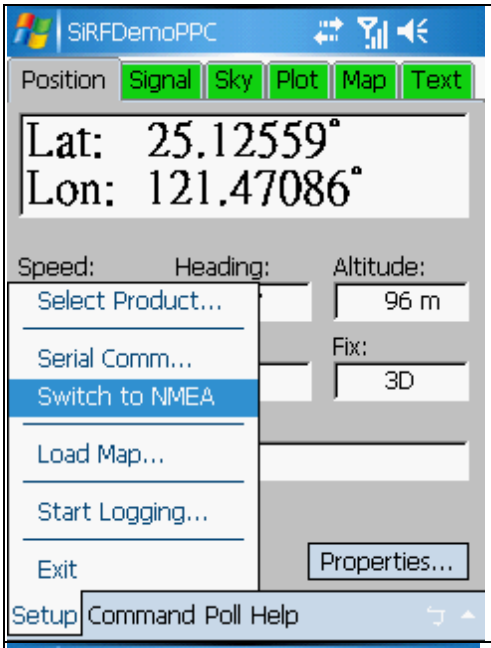
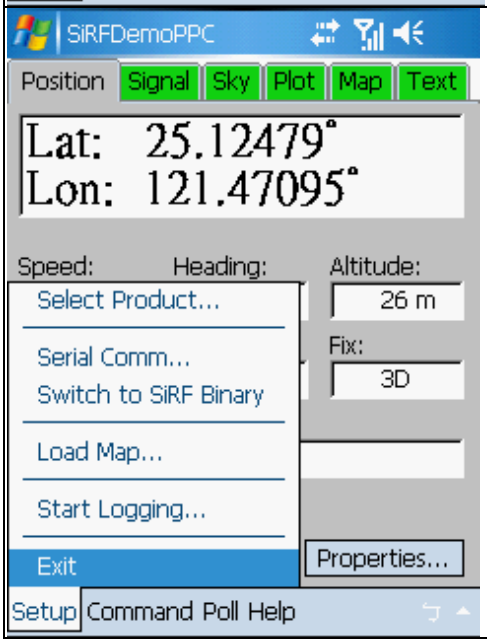
| | |
|---|---|
|  | 1. If it doesn’t return NMEA-form last usage.<br>2. When Users abuse device and change “Port and Baud Rate”.<br>Both make GPS function fail; Please following to deal with devices. |




1.Port : COM2
2.Baud Rate : Auto
3.Click “Connect”




Connected (SiRF Binary) message means GPS function is open and under “SiRF Binary mode”.
1.Chick “Done”

| | |
|---|---|
|  | 1.Click “Switch to NMEA”<br>2.Click “EXIT” |
|  | 1.Click “EXIT” |

# 19.BaseBand Repair Abstract:

For the training, the document mainly describes how to repair P535 if main board was damaged. Another topic focuses on EPE bug list from SR to DVT according to every run of repairing experience.

# 20.Introduction

## P535 GSM PDA phone

| GPS | 2M camera | WM6.0 | Bar type |
|---|---|---|---|

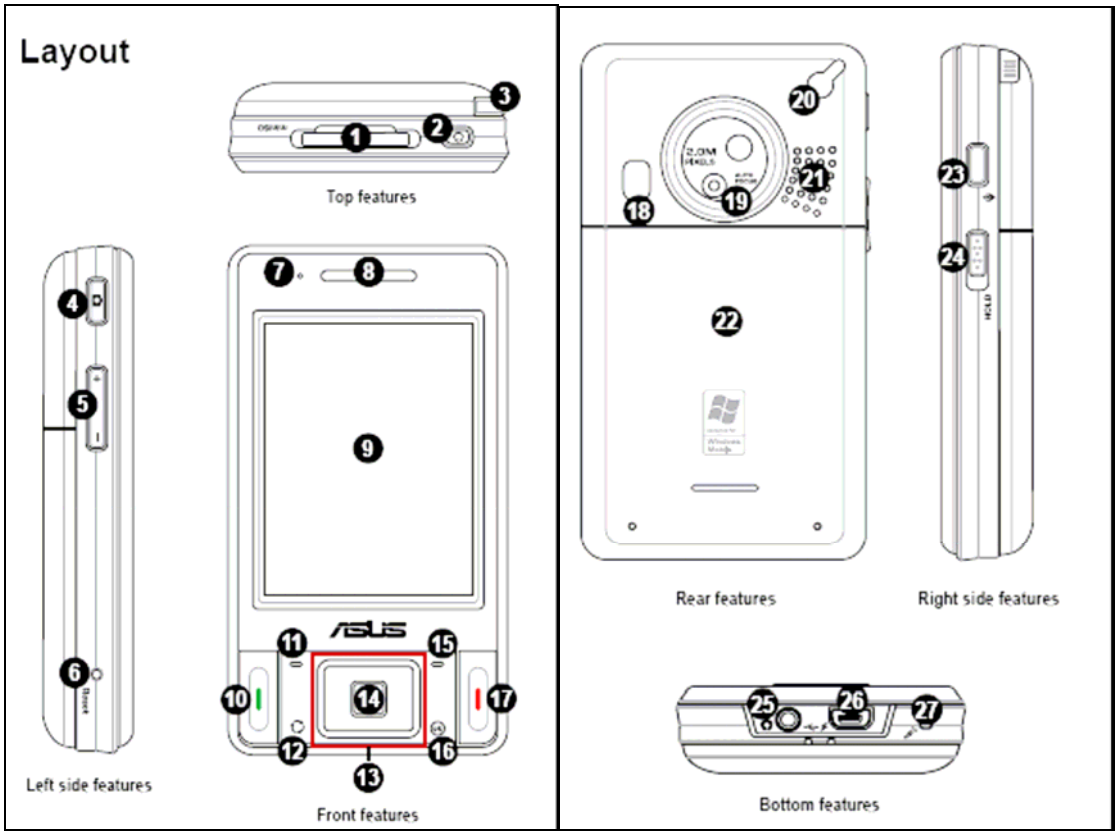
### 20.1SPECIFICAITONS

**•Frequency Band:** –GSM: Tri-band operation in GSM 900/1800/1900 networks
–UMTS: 3GPP Band **•UE Class:**
–GSM: Class B, Multi-slot Class 10

**•Operation System:** Microsoft® Windows Mobile™ 6.0Pocket PC Phone Edition

**• CPU:** Marvell PXA270 520 MHz
**•Memory:** 256MB Flash, 64 MB SDRAM
**•Extended Memory:** mini-SD Card
**•Antenna:** Build-in Solution Chip Antenna
**•Bluetooth:** Blue tooth V2.0 spec. Class 2 EDR
**•3GPP Video Streaming and Video Telephony**
**•Messaging:** SMS, MMS
**•GPS:** Built-in SiRF III GPS Chipset
**•LCM:** 2.8-inch, 65, 536-color, 240 x 320-resolution, TFT touch screen LCD
**•Dual Camera:** 2.0M pixels with auto focus and VGA
**•Connective:** Bluetooth / USB1.1 (Client and Host) / mini-SD
**•Audio:** Speaker/ MIC/ Receiver
**•Battery:** Maxell 1300 mAh
**•Expansion Slot:** MiniSD Card
**•Dimension:** 109 x 59 x 19 mm

### 20.2 ID Concept


Layout
Top features
Left side features
Front features
Rear features
Right side features
Bottom features

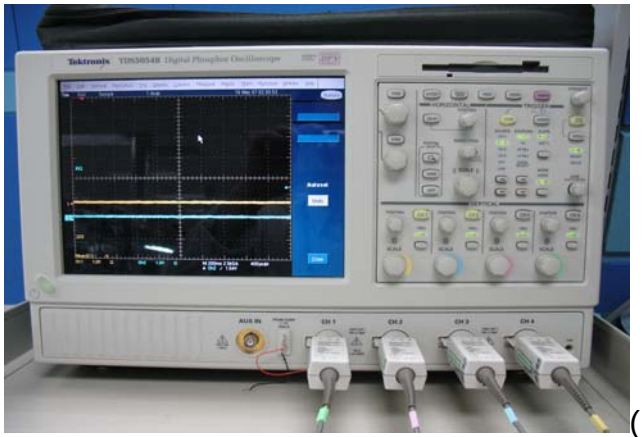
# 21.Test Set and Tool

## 21.1 Power Supply

**MOTECH programmable DC power Supply or equivalence *1**

## 21.2 Oscilloscope

**Tektrniox TDS5054B Digital Phosphor Oscilloscope or equivalence *1**


( Bandwidth 200MHz )

## 21.3 Microscope

(10X,40X)

## 21.4 Other ME Tool

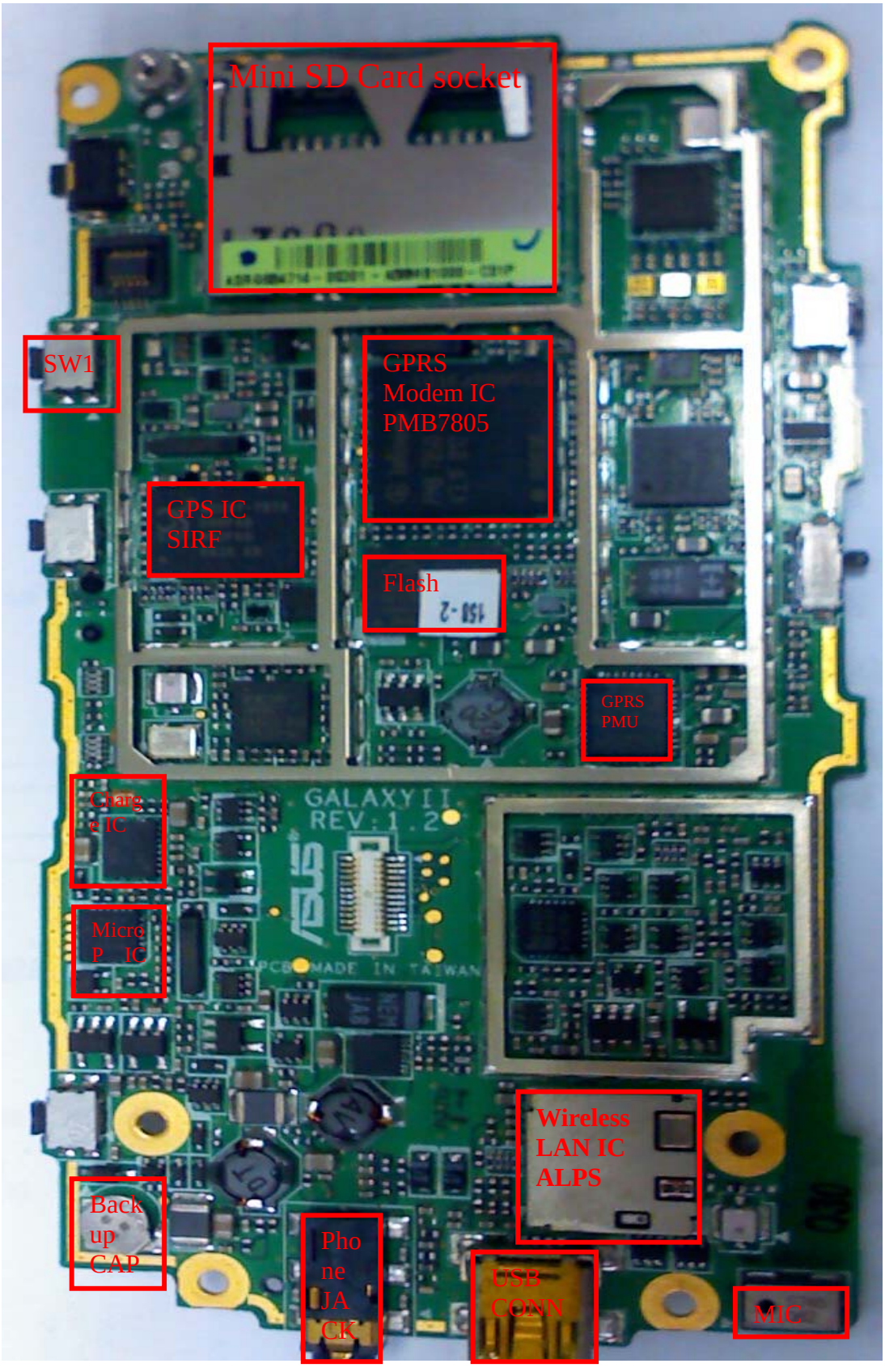
(Plastic wrench ,Screwdriver T5 and #00)

## 21.5 P535 Charger

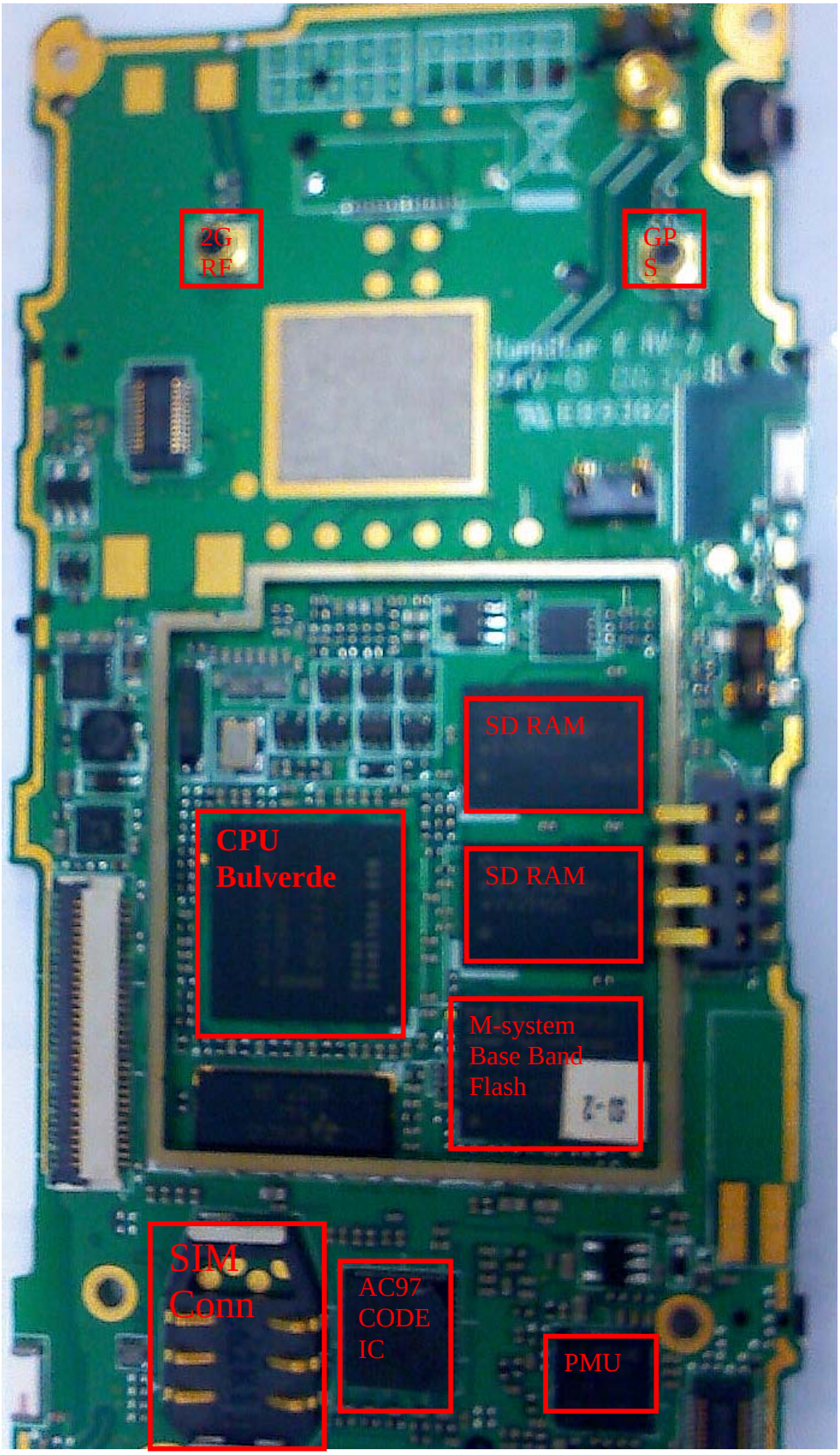
The default charger adaptor for P735 is TAMURA PACIFIC JSP050090UC. Meanwhile, P735 support USB charging with 500mA.

# 22.PCBA Outlook

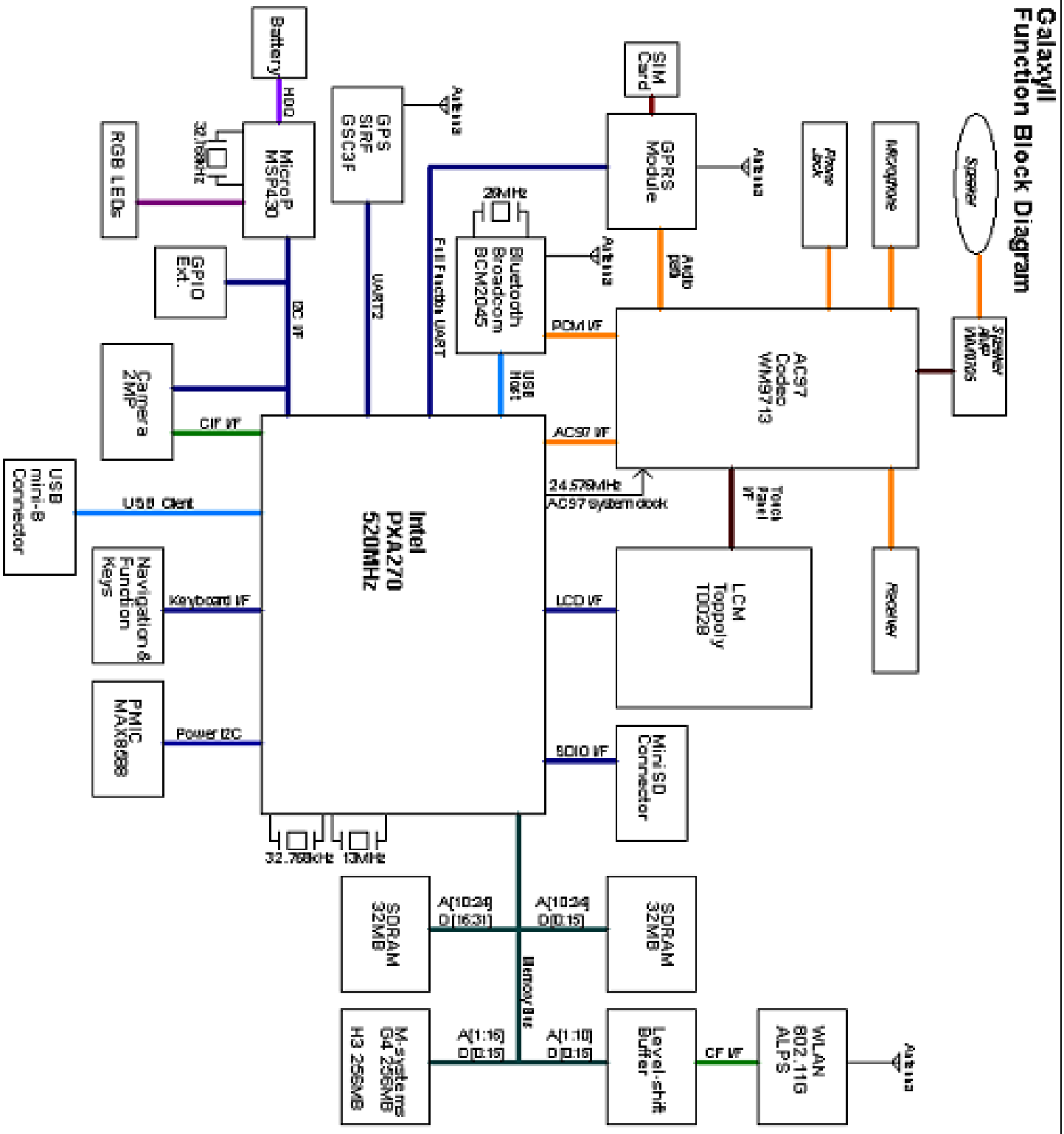
## 22.1 PCBA- TOP side



## 22.2 PCBA- Bottom side

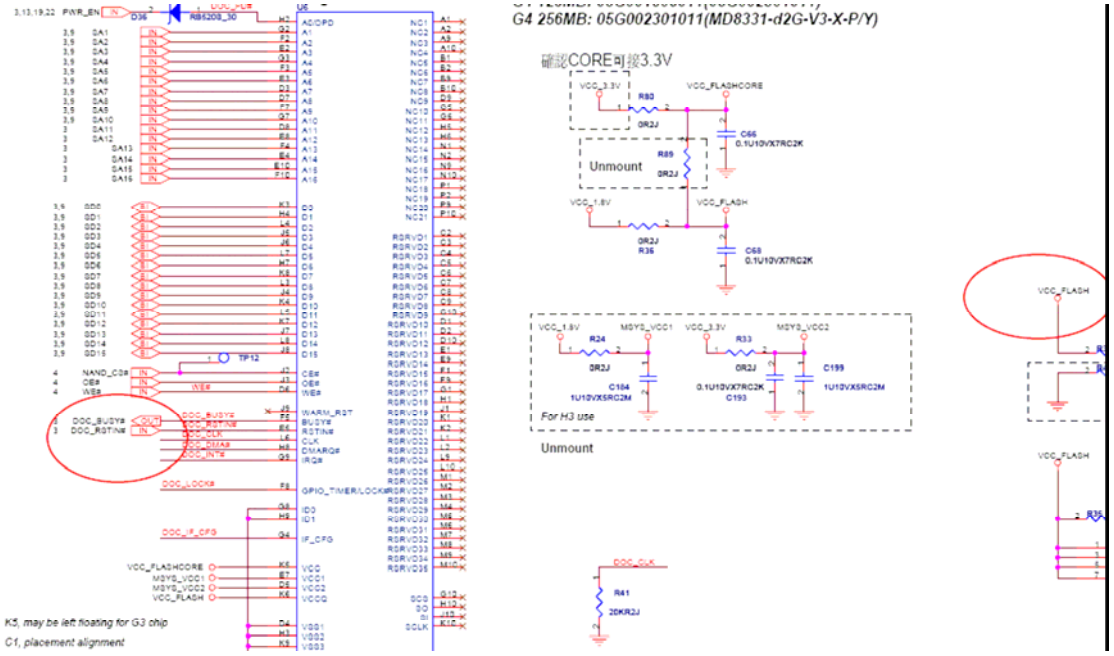


# 23.P535 Block Diagram

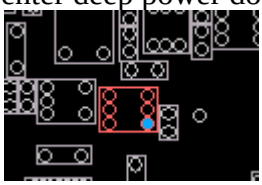


# 24. P535 Reference Schematic Overview

## 24.1 Flash memory 256MB



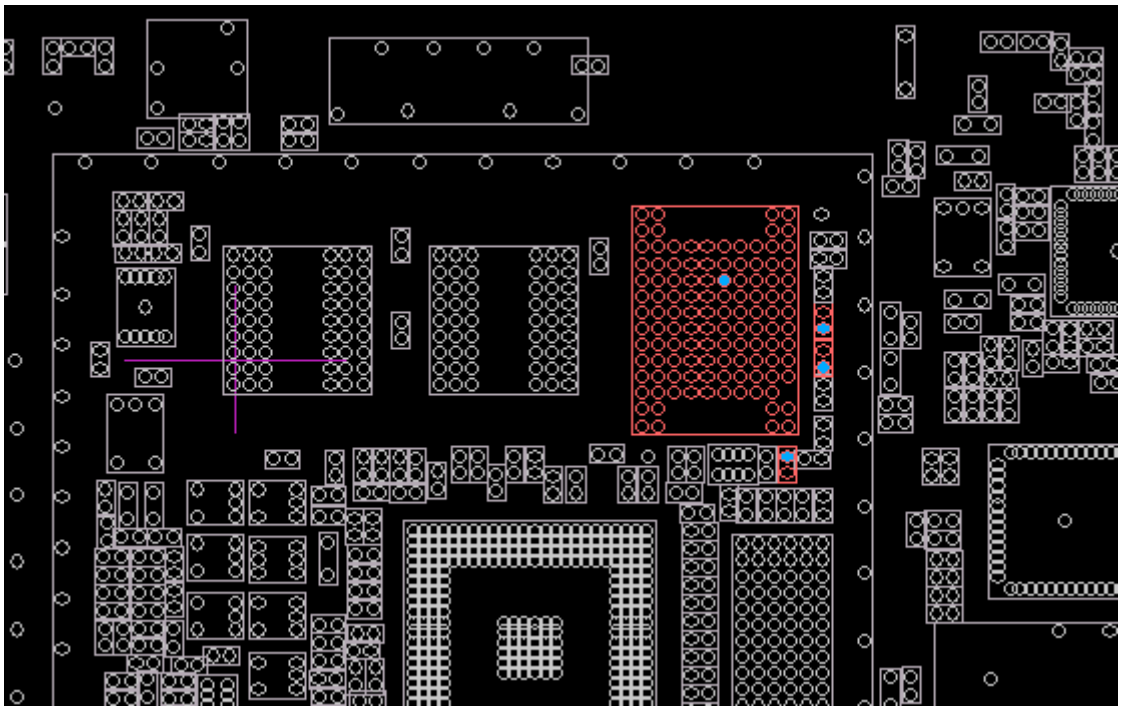

Force Flash enter deep power down mode by RSTIN# = 0



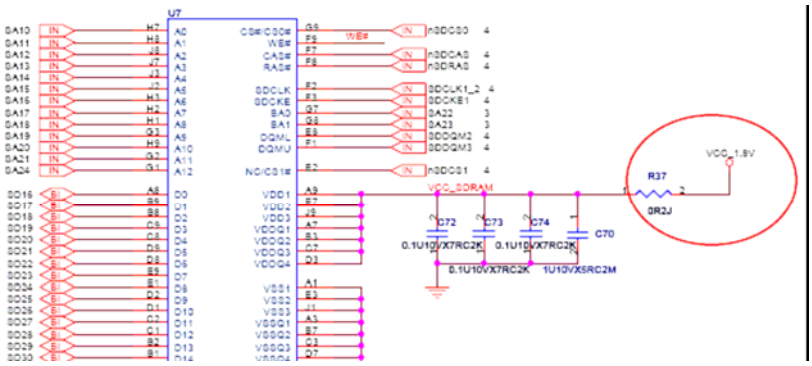
U58 Pin 4

Measure Point for M-system →3.3V need be exist

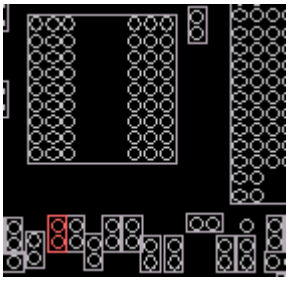
R80 .2 & C66 .2



## 24.2 SDRAM (32MB * 2)

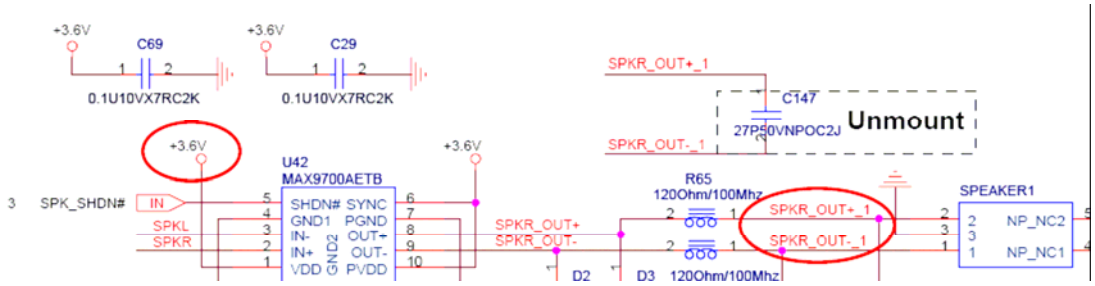



For SDRAM Power Domain =1.8V

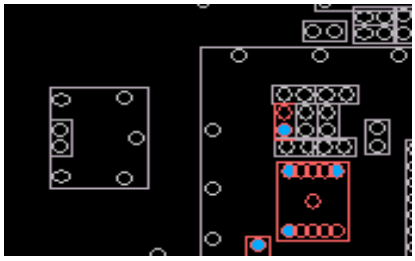


R37 0 Ohm

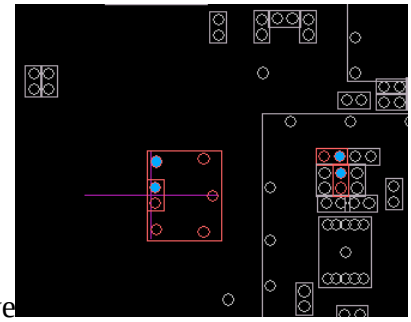
## 24.3 Speaker




Power Amp working Voltage = 3.6V



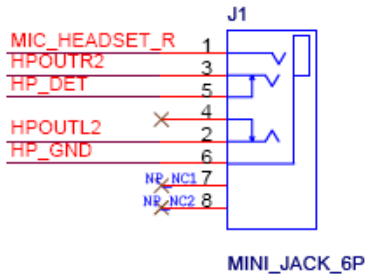
Measure point: C69.1 = 3.6V



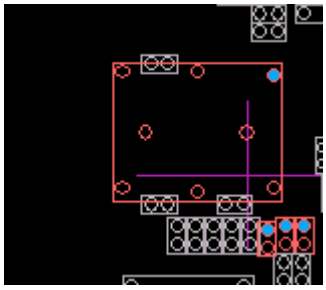
Measure point: SPAKER 1 pin 1 be SIN wave

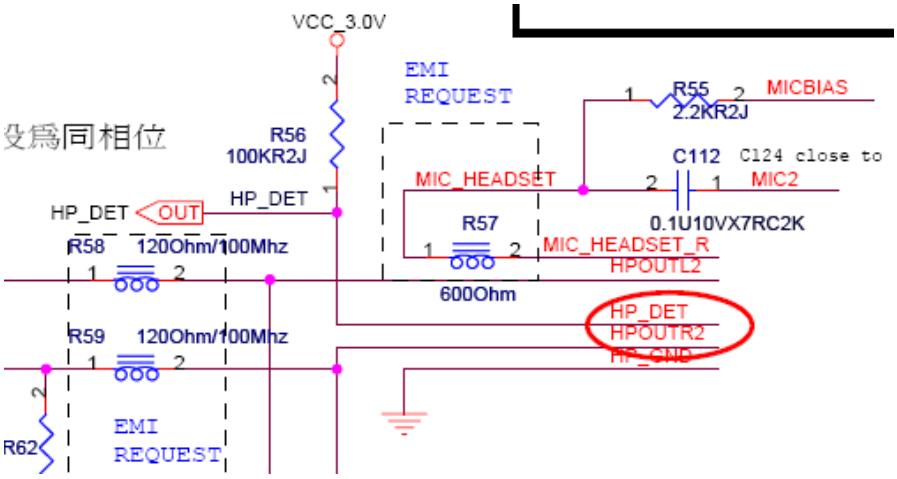
## 24.4 Head Phone

### Phone Jack

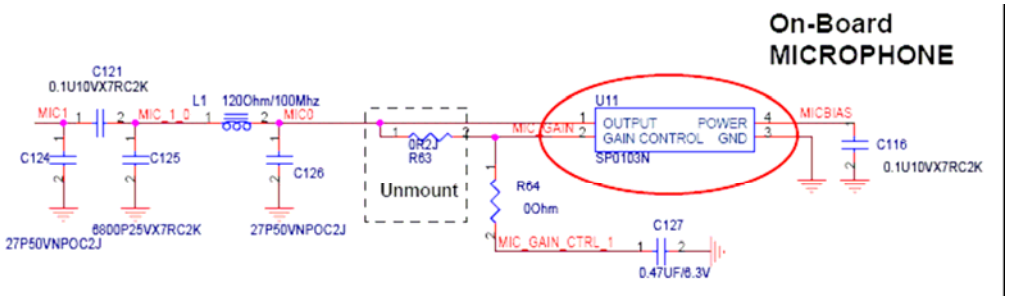



HP_DET will pull High ( 3V ) when Phone jack plug in
Measure Point : R56 .1

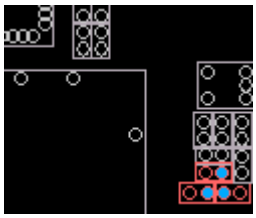




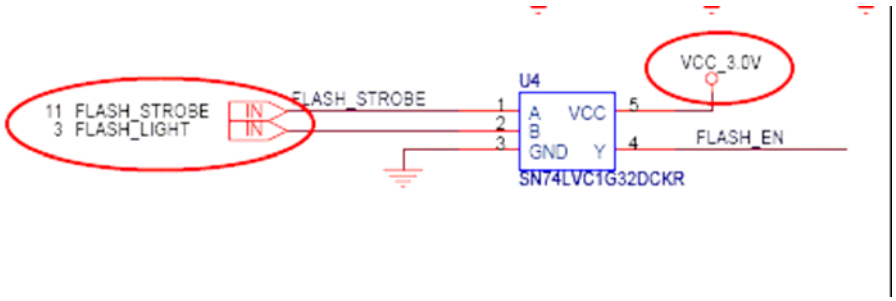
## 24.5 MIC



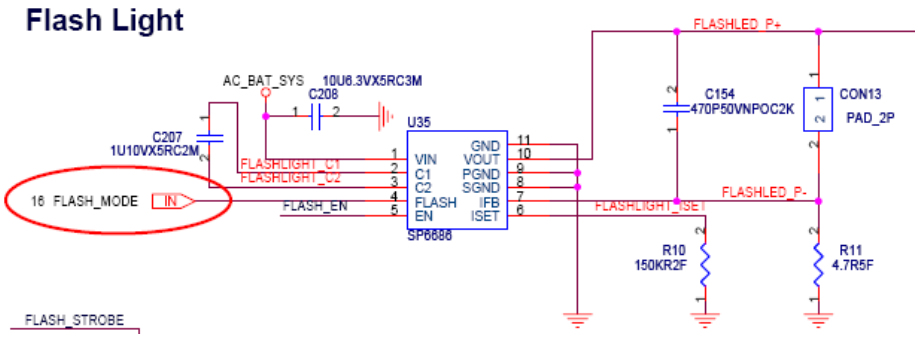

On Board CHIP , Also measure L1.1 when the signal input



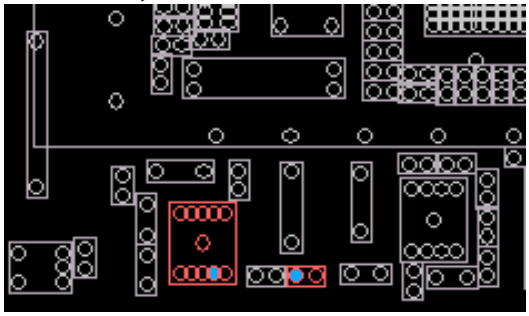
24.6 Flash LED




Power domain=3V
When U4.2 form CPU and U4.1 Camera inter phase will active the Flash EN

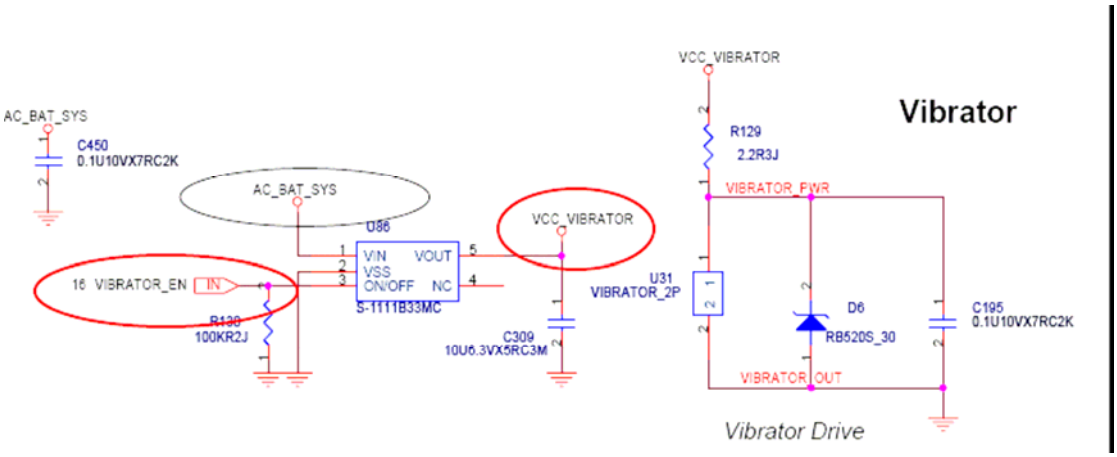



Flash Mode =0 Torch Mode →10.6mA; Flash Mode =1 Flash Mode →20mA

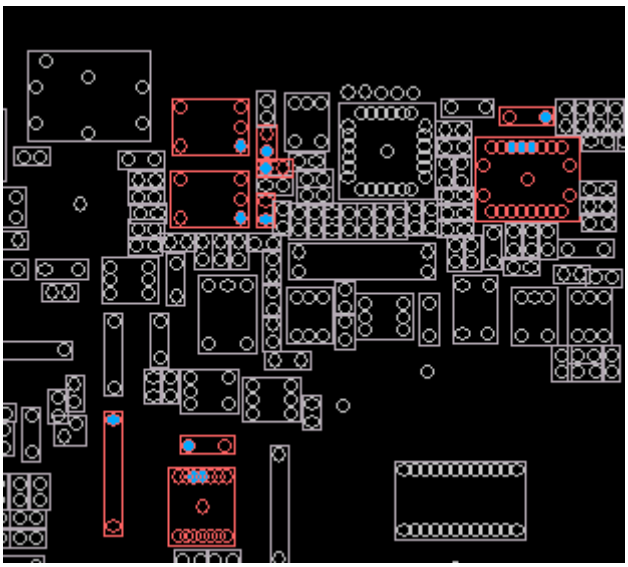


Measure Point R273.2

# 24.7 Vibrator

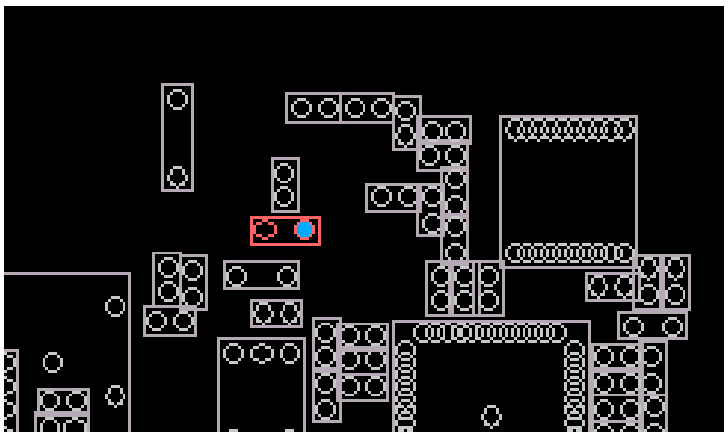



Power domain -→ AC_BAT_SYS

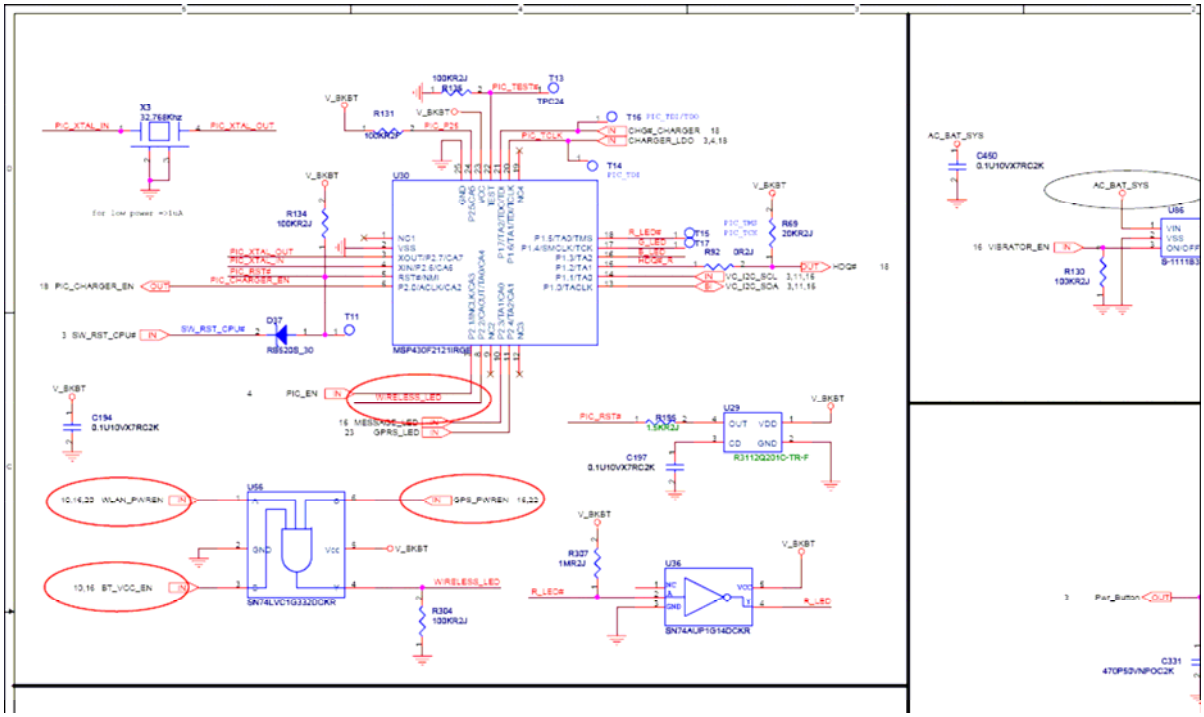


Measure point : C288.2 R213 C450.2

When signal will be actived for VIB Enable ; Measure the point R129 =3V above



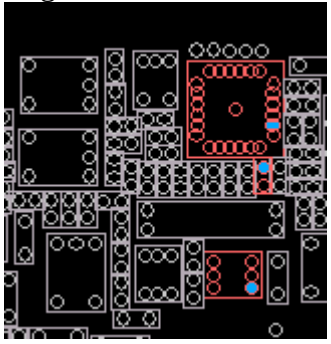
## 24.8 LED



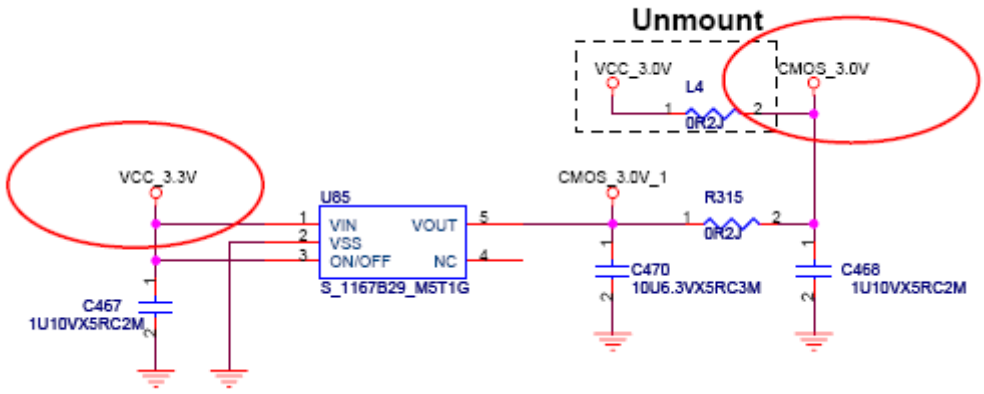
Wireless signal ,GPS Signal , Blue tooth Signal will Pass the Wireless LED status ON/OFF, The Signal can be controlled by U30 ( Micro P ).

Measure Point :Power of U30 D29.1,D28.1

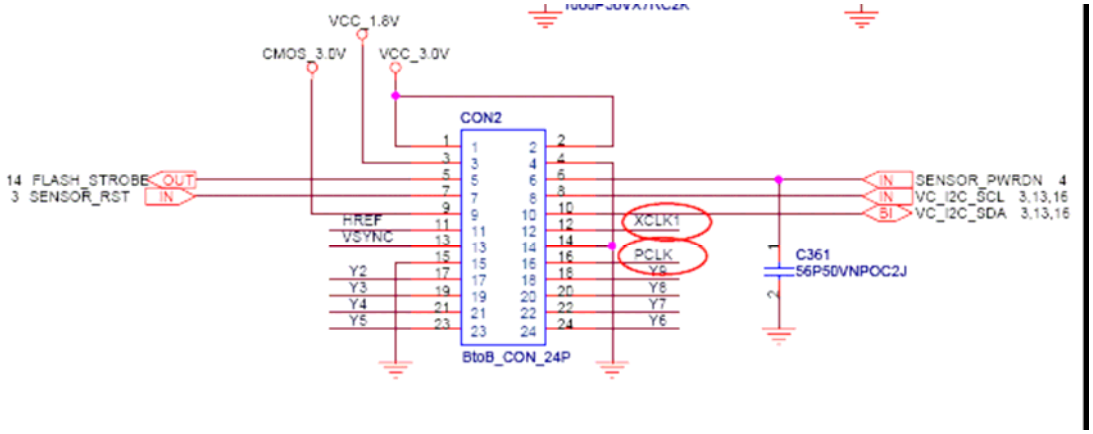
Logic Measure Point : R304.2 with the specify voltage



24.9 Camera

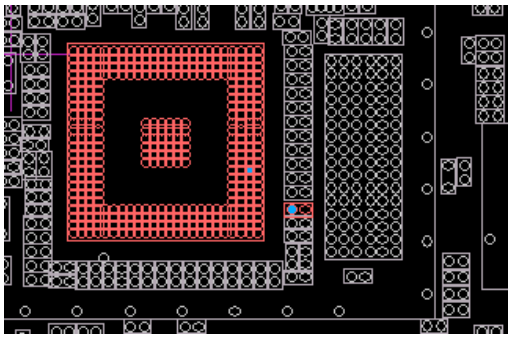


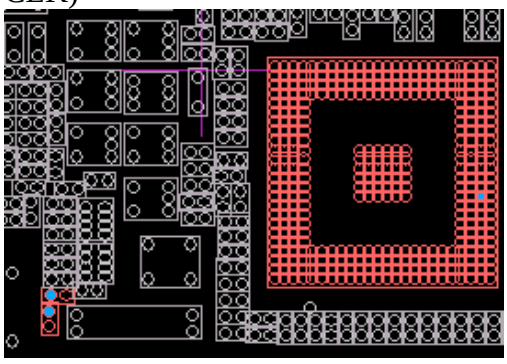

The Camera's Power will support from U85 output =3V.



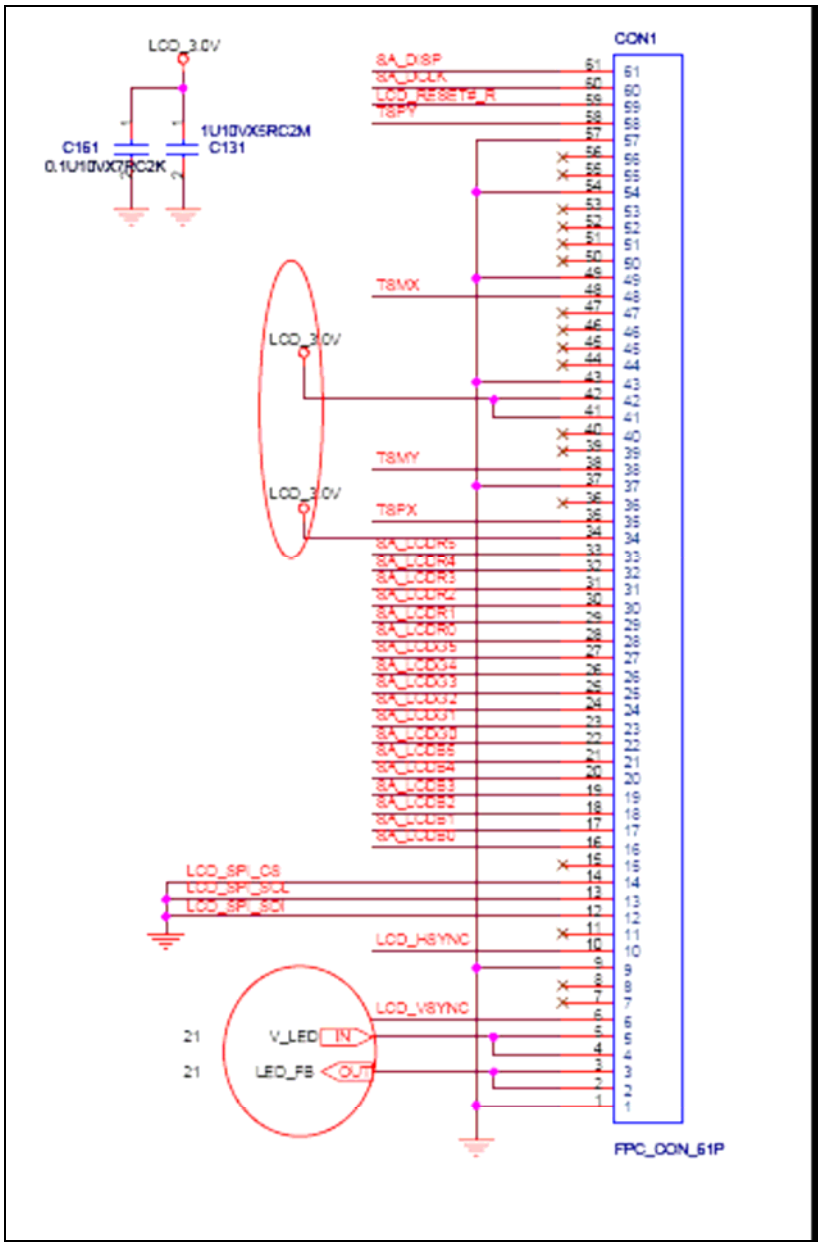

XCLK,PCLK ➔ Data clock form Camera to CPU (U1).

Measure Point: R121.2 (XCLK) , R122.2 (PCLK)

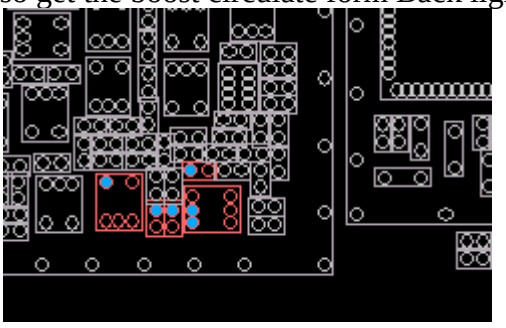




## 24.10 LCM



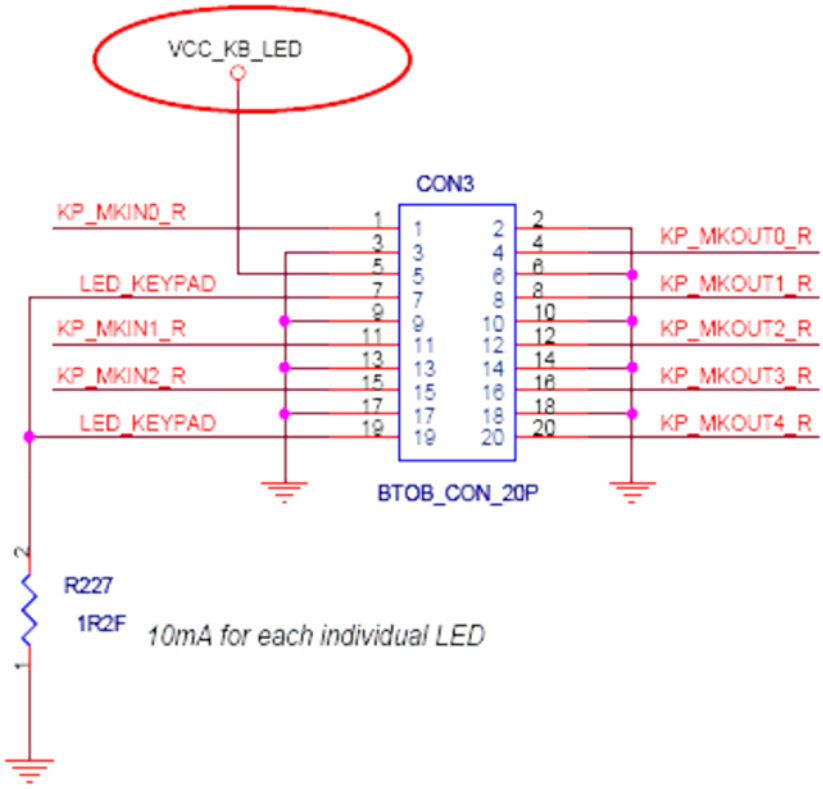

LCD Connector Power supply 3V, Also get the boost circulate form Back light Chip.



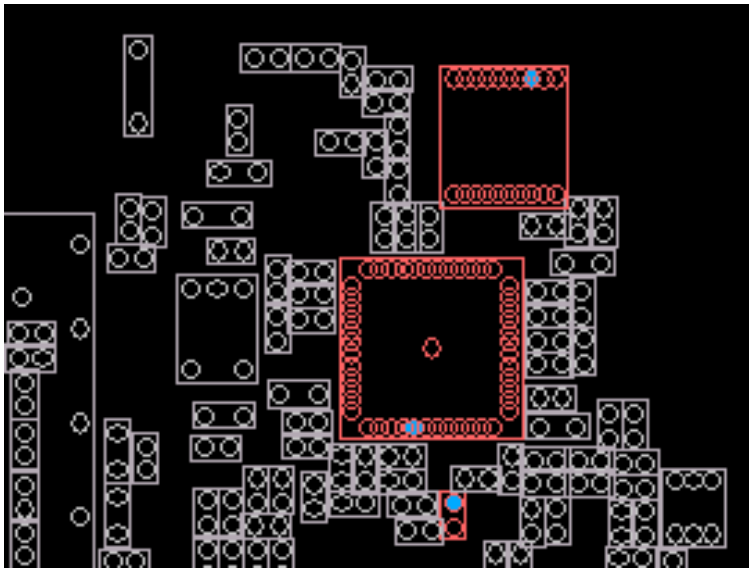
Measure Point: C161 .1 LCD Power
D26.2 V_LED

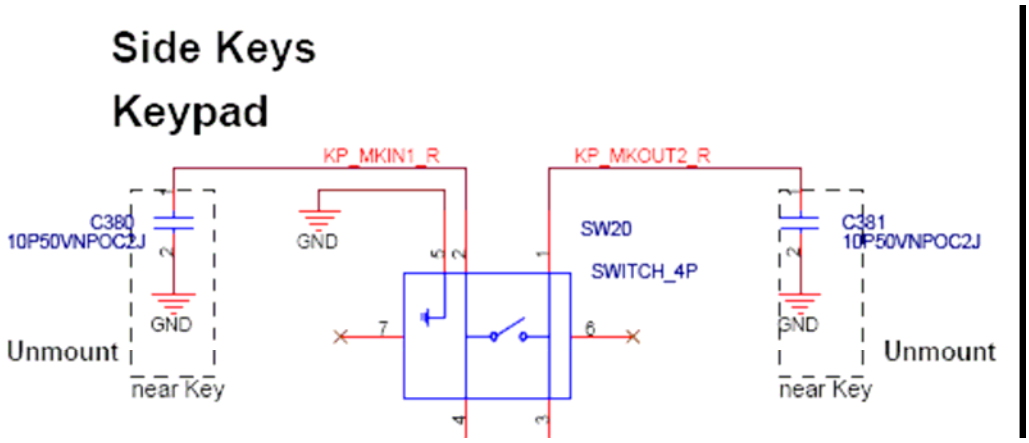
## 24.11 Keypad

CON3 KeyPad +KeyPad LED

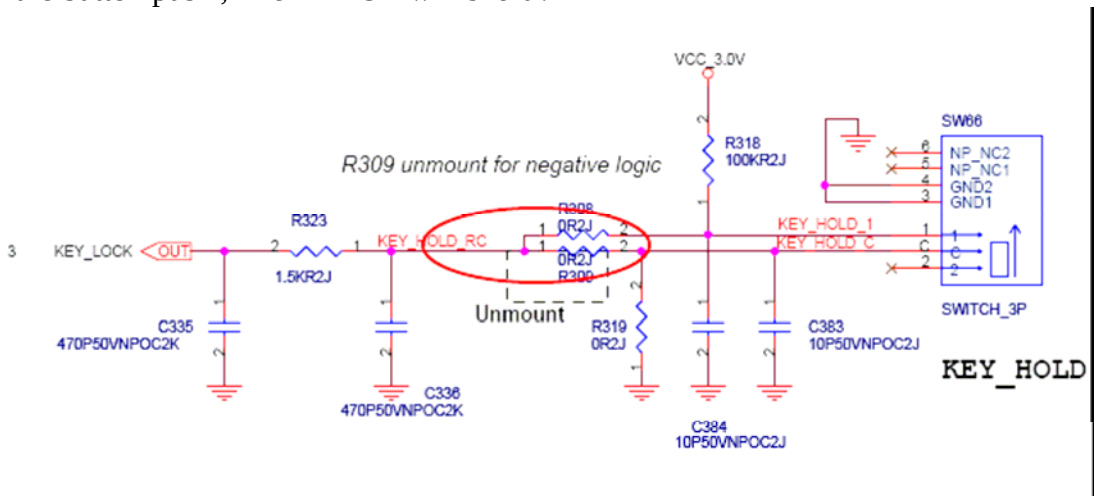



Measure point :C269.1 for Keypad Voltage

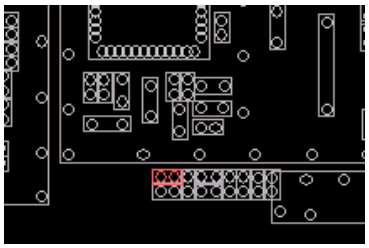





If the button push , The Pin 1&2 will short !



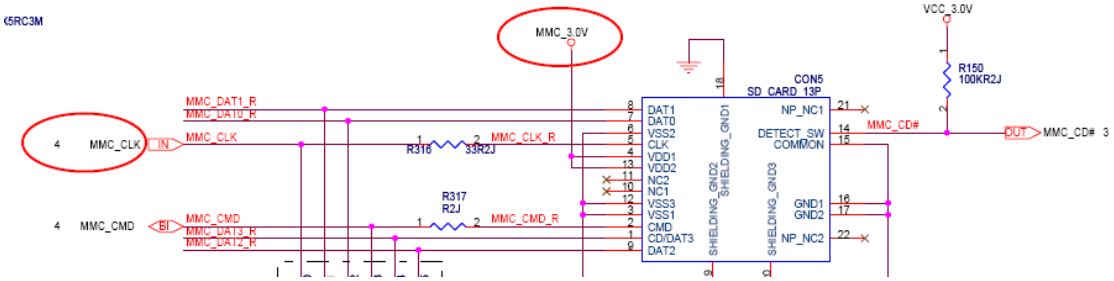

If the we choose the lock signal, We can detect the High level to CPU (U1).

Measure Point R323 .1 

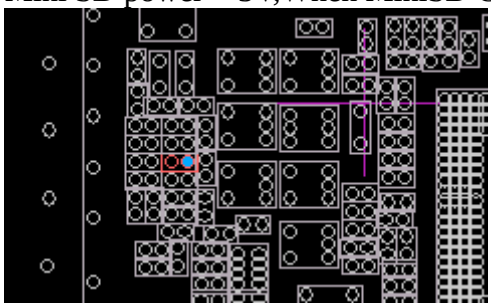
Key Pad Matrix

| P535 Key Pad Matrix | | | | | | |
|---|---|---|---|---|---|---|
| | KP_OUT0_R | KP_OUT1_R | KP_OUT2_R | KP_OUT3_R | KP_OUT4_R | KP_OUT5_R |
| Kp_Mkin0_R Wake Up | Soft 2 | Soft 1 | Send | V call | N/a | N/a |
| Kp_Mkin1_R Wake Up | Portal Voice Note | END | Vol Down | Vol Up | Record | Camera 1 |
| Kp_Mkin2_R Wake Up | Up | Select/Enter | Left | Right | Down | Camera 2 |

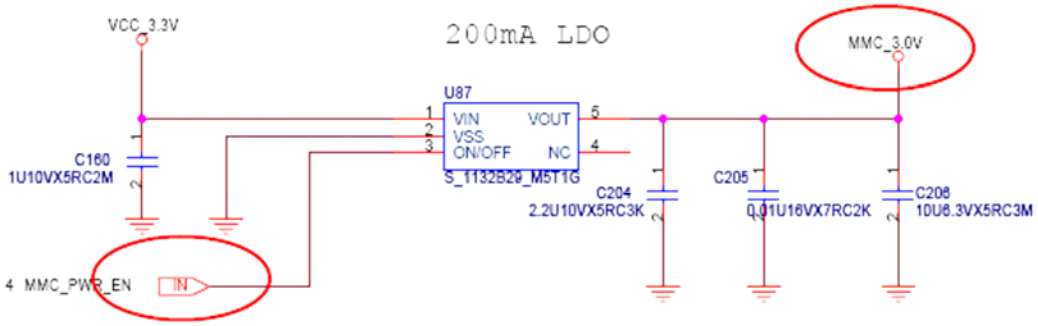
# 24.12 Mini SD Slot



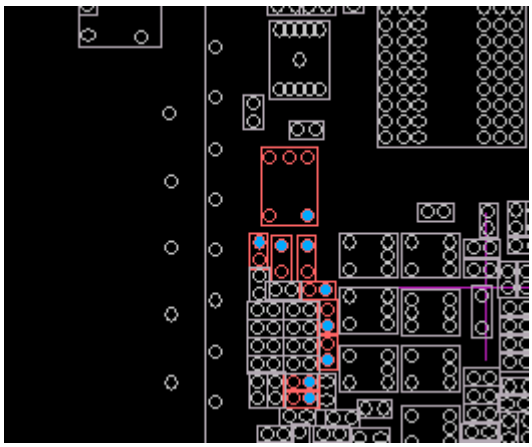

Mini SD power = 3V,When MiniSD Card plug in CON5, Also need measure the clock on R316.2

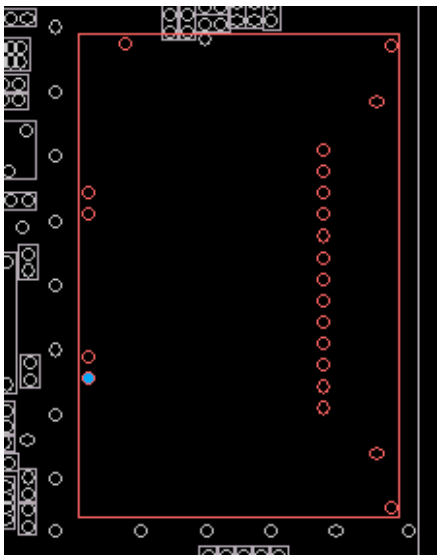


When CONNECTOR.14 will pull Low then CPU will pass the MMC_PWR_EN




Also check the C206.1 & CON5.14

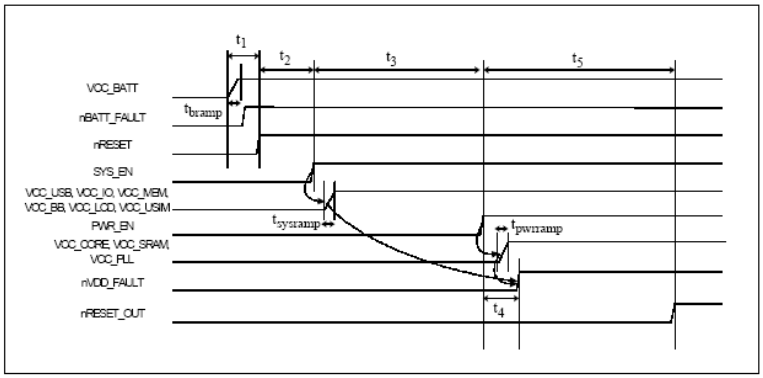


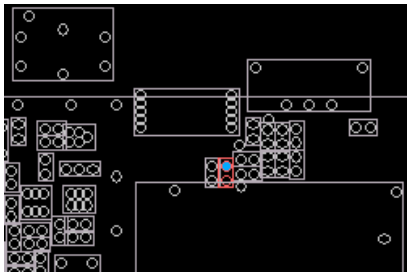


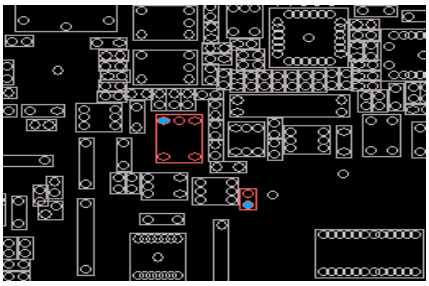
# 25. Troubleshooting

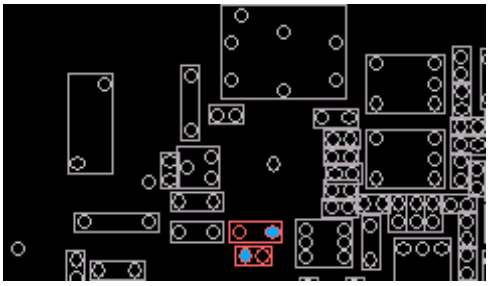
## 25.1 System fail to boot up

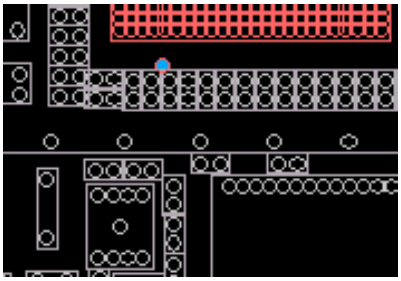
1. if consumed current is zero，inspect battery connector if normal.
2. Also check about the VCC_BAT for power domain check .**R322.2** ,If missing the voltage then check about the PCB & Battery connector.
2. if consumed current is above normal (300~500mA)，touch and feel any chip if getting heat abnormally。
3. If consumed current is increasing to 180mA, and while after, become zero. It often means Bulverde abnormal, check Bulverde first if solder crack, chip damaged, X'tal abnormal (32.768KHz and 13 MHz) and etc.
4. If system hangs at the following display, it often means PMB7850 abnormal. Sometimes, it caused by PMIC ADC error, therefore, cause HW version detection error.
5. If current going down suddenly to 0 mA while booting
    a. Inspect power domain and clock of Bulverde and PMB7850。
    b. Inspect Bulverde power on sequence, clarify CPU side problem or PMIC side problem。
    c. Bulverde Power Sequence
        - VCC_BAT **R322.2**
        - Sys_EN **R358.1**
        - PWR_EN **Diode D36.2**
        - N_Reset_Out **Test Point TP5**





VCC_BAT ( Battery ) R322.2


Sys_EN R358.1

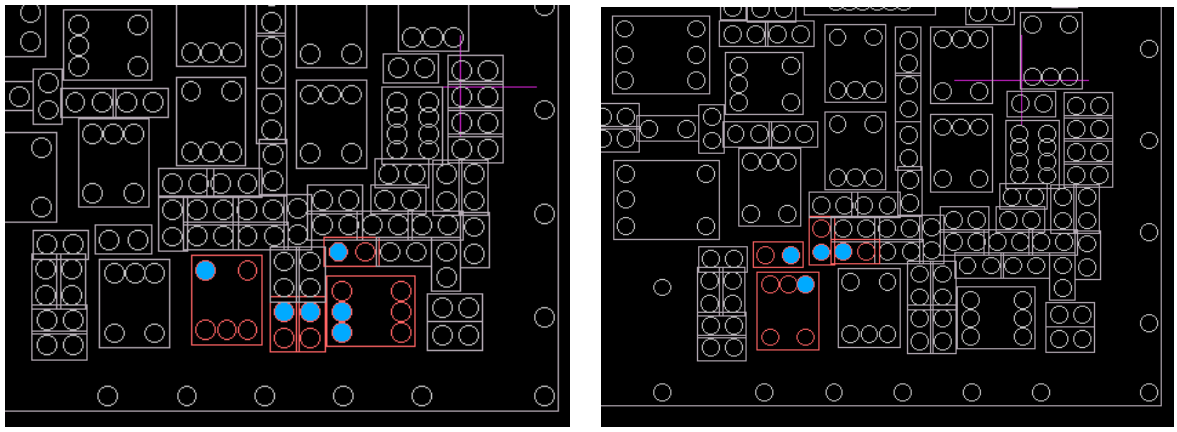

PWR_EN D36.2


nReset TP5

## 25.2 LCD Problem:

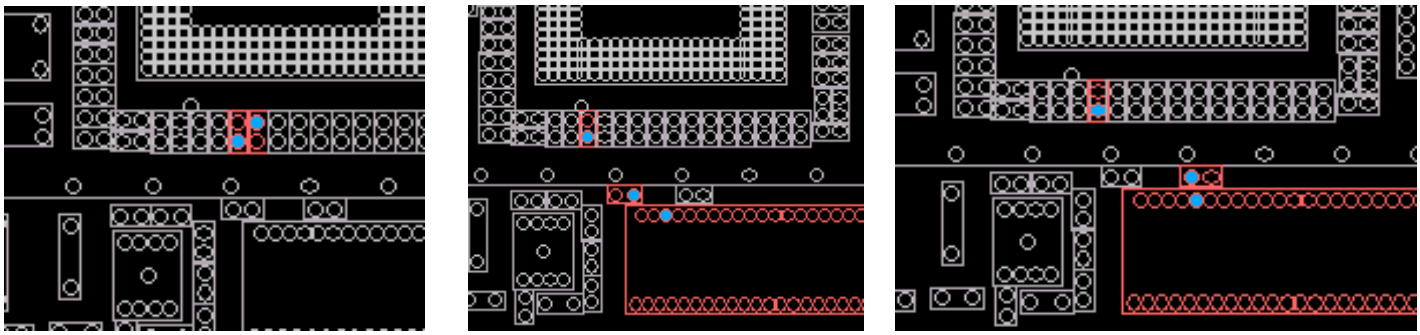
1. Inspect LCD connector and power on signals, which are LCD_3.0V (C161.1) and LCD_nReset # (R252.2), as shown in Pig 5-1, if panel can not monitor.
2. Inspect PCLK (R21.1) signal of CPU as shown in Pig.5-2, if panel appear white monitor.
3. Inspect FCLK (C178.2)signal of CPU as shown in of Pig.5-2, if panel appear horizontal line.
4. Inspect LCLK (R20.1)signal of CPU as shown in of Pig.5-2, if panel appear shift monitor.
5. Inspect LCD back light driver as shown in Pig.5-3, if panel can not drive back light.C296.1

C161.1 R252.2



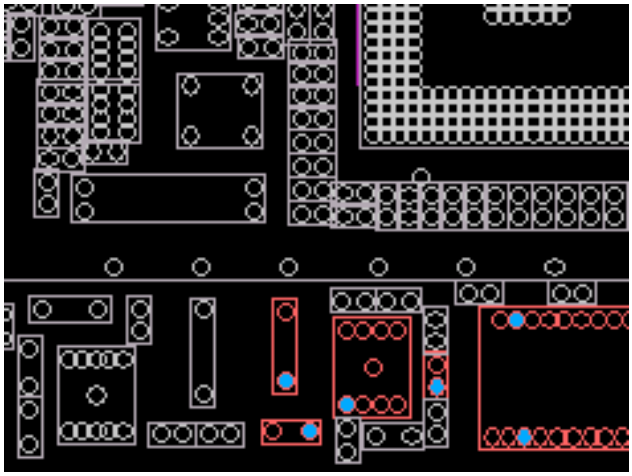
Pig.5-1 Pin of LCD connector and power domain located in P535 Bottom Side.

R21.1 C178.2 R20.1



Pig.5-2 PCLK, FCLK and LCLK

C296.1

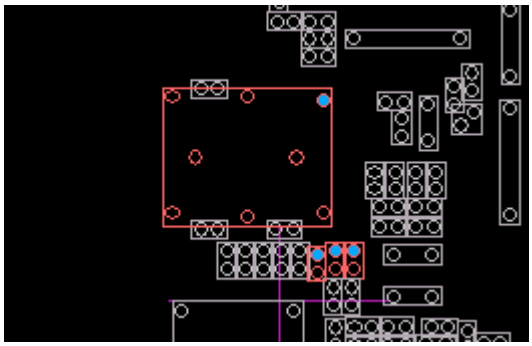


Pig.5-3 LCD back light driver

# 25.3 AUDIO

## Receiver no sound

1. Inspect contact between receiver pad and receiver
2. Inspect voltage level of audio headset detect pin，if level is High , audio will be directed to headset.
3. Inspect receiver if damaged.
3. Inspect receiver signal from CODEC, if no signal, further check CODEC Path will some problems.



Headset Detect Pin J1.5

## Speaker no sound

1.Inspect contact of speaker and spring .
2. Inspect voltage level of audio headset detect pin,if level is High , audio will be directed to headset .
3. Inspect speaker if damaged.
4. 4.Inspect speaker signal from PMIC, if no signal, further check PMIC Path will some problems.

## MIC no sound

1.Inspect MIC if damaged.
2. Inspect voltage level of audio headset detect pin，if level is High , audio will be directed to headset.
3. Inspect bias of MIC.
4. Inspect soldering of MIC.

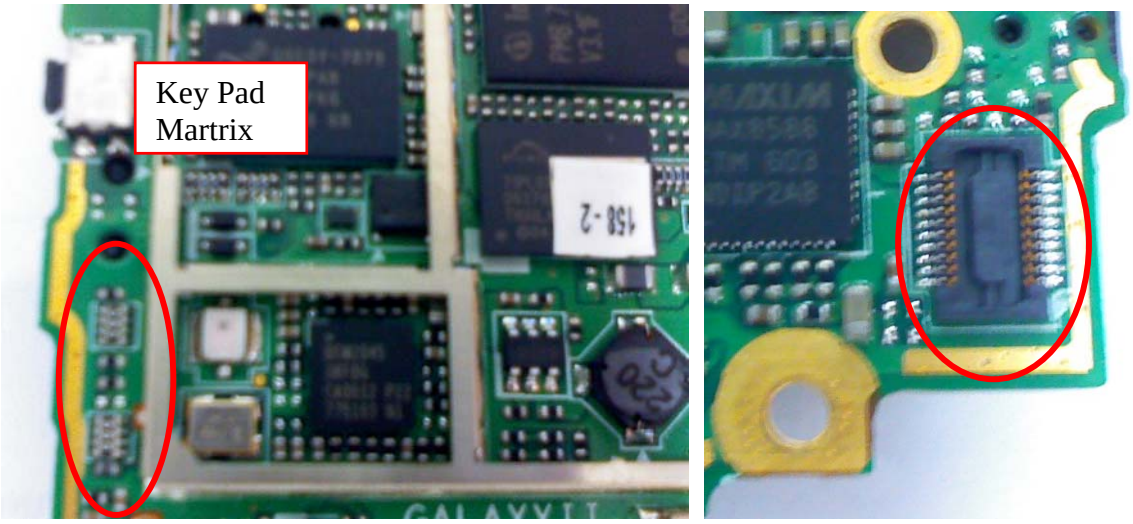
## Fail to record

1. Inspect MIC, speaker and audio jack respectively.
2. Inspect Side Key Solder mounting status, Try to re-heat it.
3. Also Clean Boot the PDA phone avoid software issue.

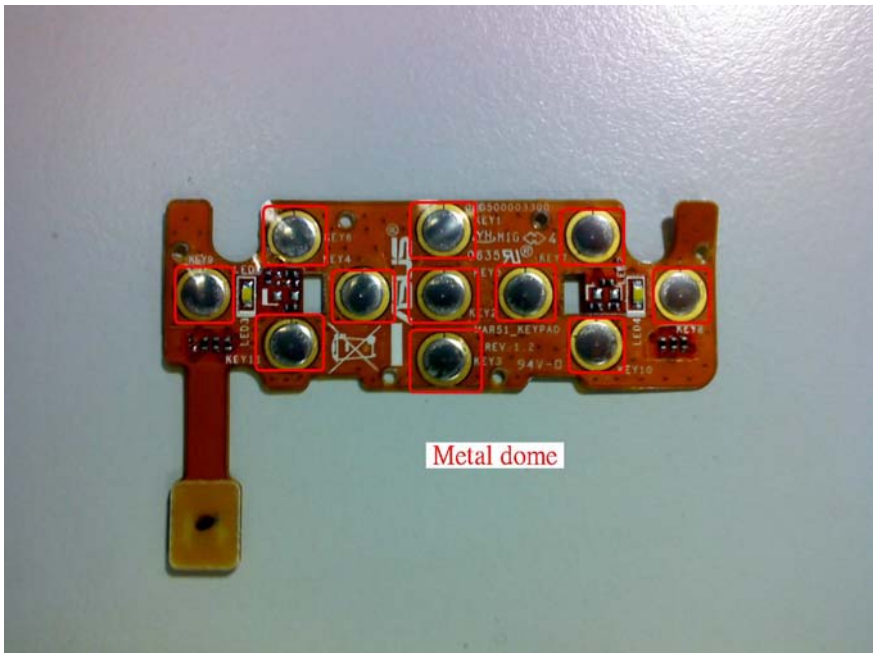
## 25.4 Qwerty Keypad problem:

1. Inspect keypad connector as shown in Pig.6-1, if function key can not work.
2. Inspect metal dome of keypad as shown in Pig.6-2, if function key can not work.
3. Inspect key matrix of CPU as shown in Pig.6-1, if part of function key can not work.
5. Path will some problems.

6.




Pig.6-1 keypad connector and key matrix are located in P535 bottom side.

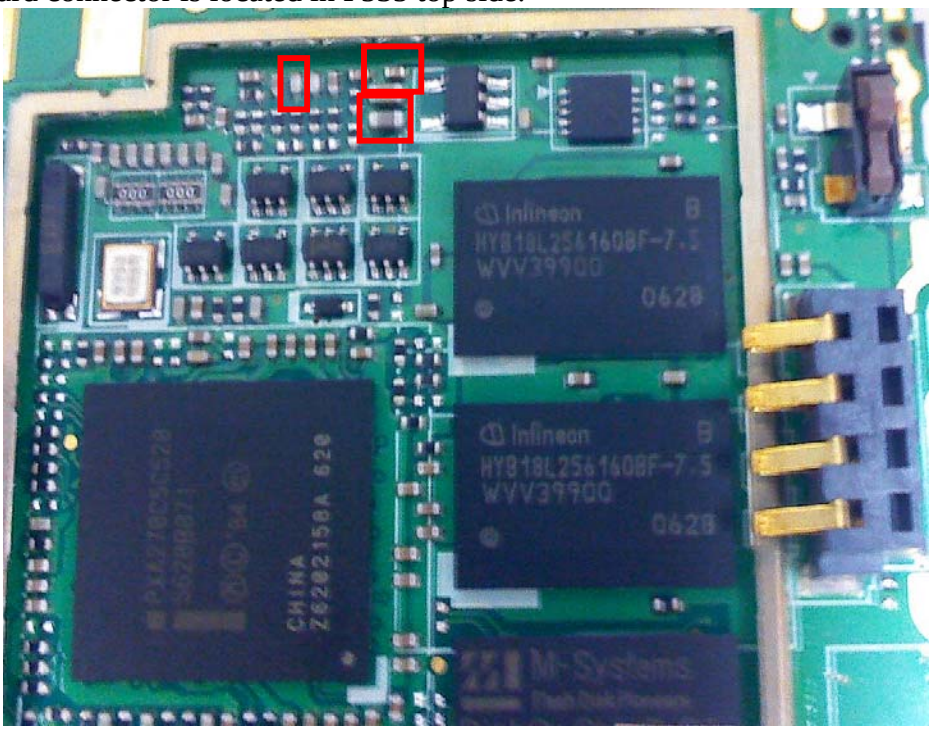



Pig.6-2 Metal dome of P535 QWERTY keypad.

## 25.5 Mini-SD card problem:

1. Inspect mini-SD card connector as shown in Pig.7-1, if mini-SD card can not be read data or detect SD device.
2. Inspect mini-SD card power domain as shown in Pig.7-2, if mini-SD card can not be read data or detect SD card device.
3. Inspect mini-SD card data path as shown in Pig.7-2, if mini-SD card can not be read data.

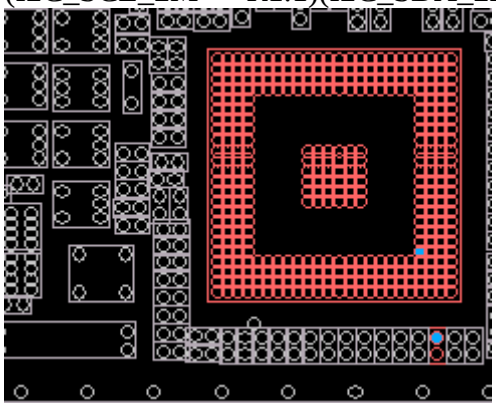
Pig.7-1 Mini-SD card connector is located in P535 top side.

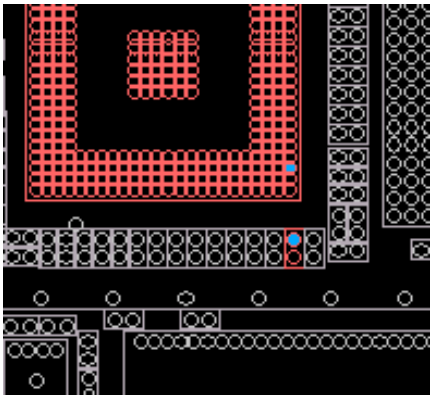


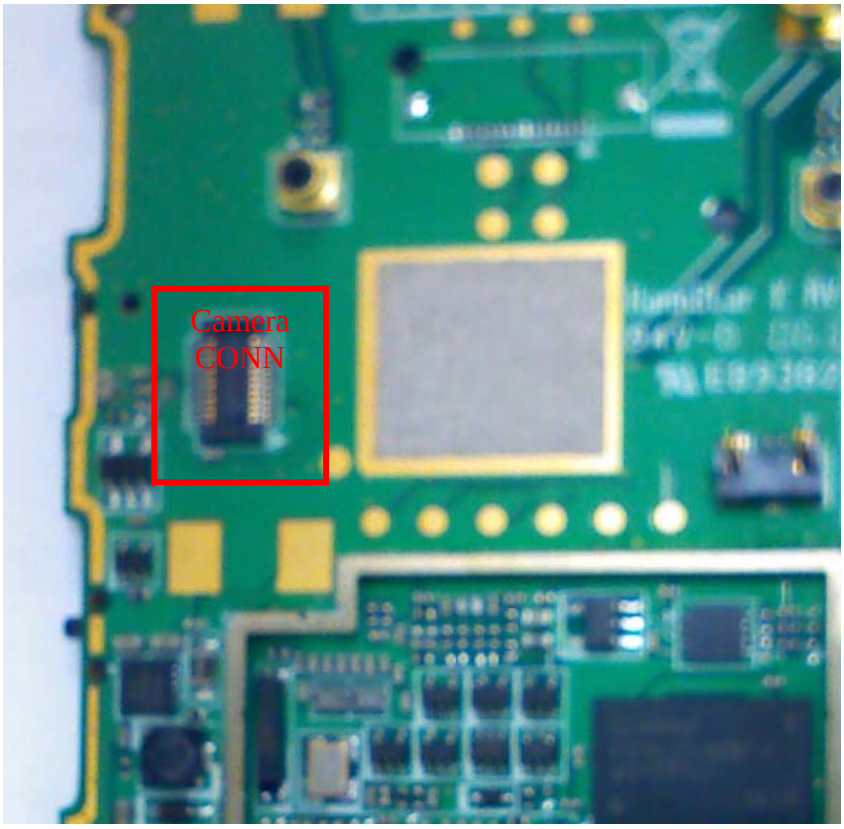
Pig.7-2 power domain and data pin of mini-SD card sign in red box.

## 25.6 Camera problem:

1. Inspect camera connector as shown in Pig.8, if camera function can not work or can not detect camera device.
2. Inspect I2C path which connect to camera module as shown in Pig.8, if camera device can not be detected. (I2C_SCL_2M R1.1)(I2C_SDA_2M R3.2)



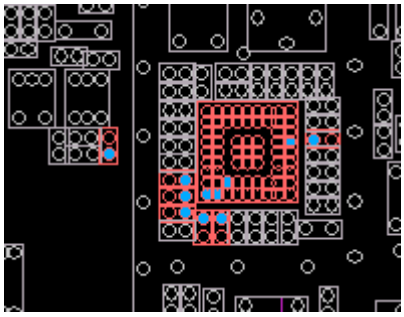


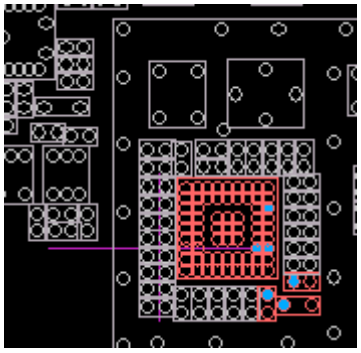



Pig.8 camera connector is located in P535 bottom side.

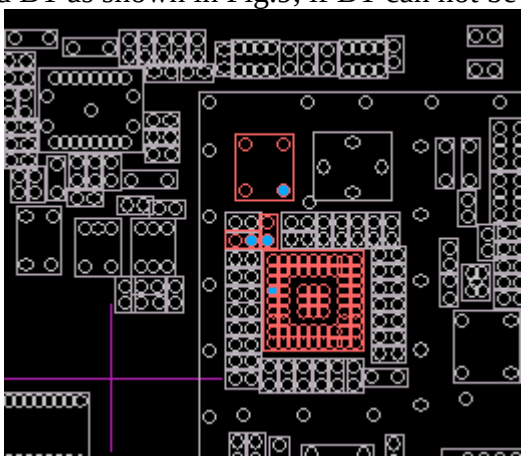
## 25.7 BT problem:

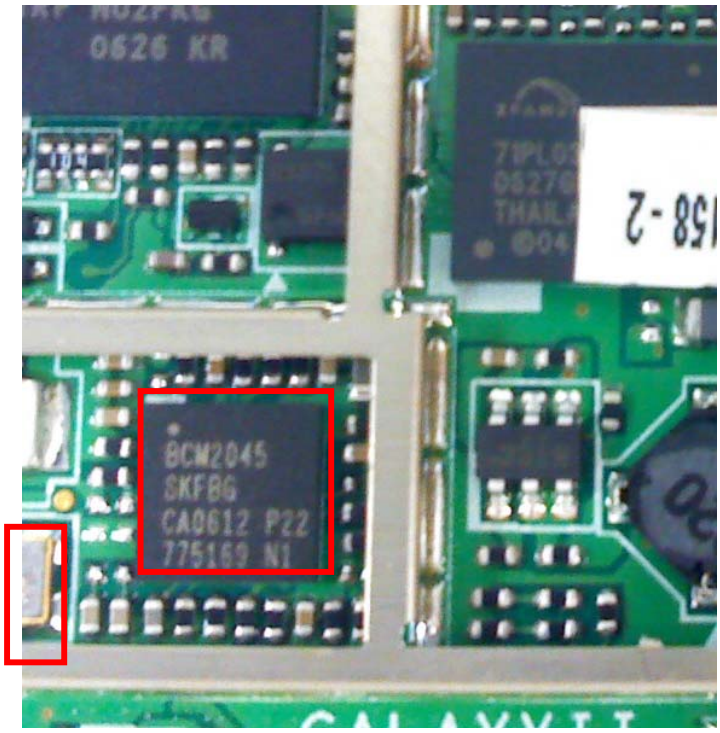
1. Inspect power domain of Bluetooth as shown in Pig.9, if BT can not work.(+2V8_BT R114.1) (+1V5_BT_REG1 C148.1)





2. Inspect BT module as shown in Pig.9, if BT can not be detected.
3. Inspect crystal which supported BT as shown in Pig.9, if BT can not be work.(C163.1)

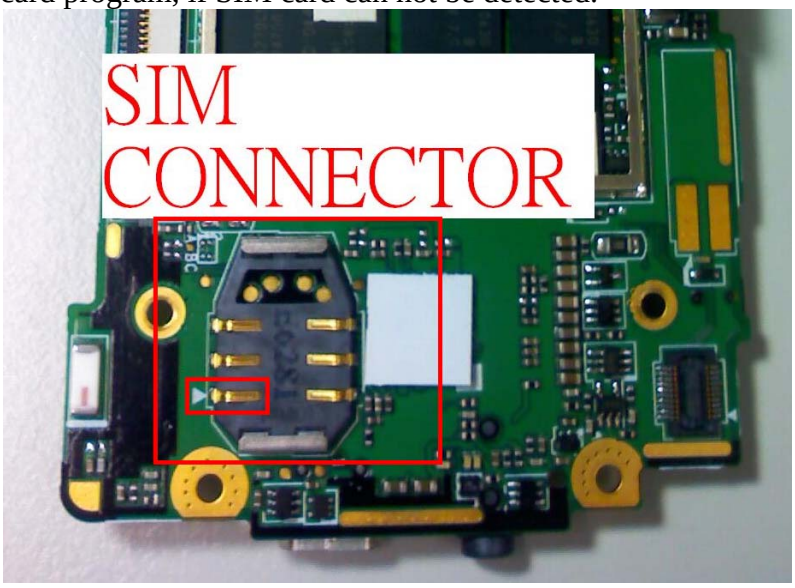





Pig.9 BT and XTAL are located in top side.

## 25.8 SIM card problem:

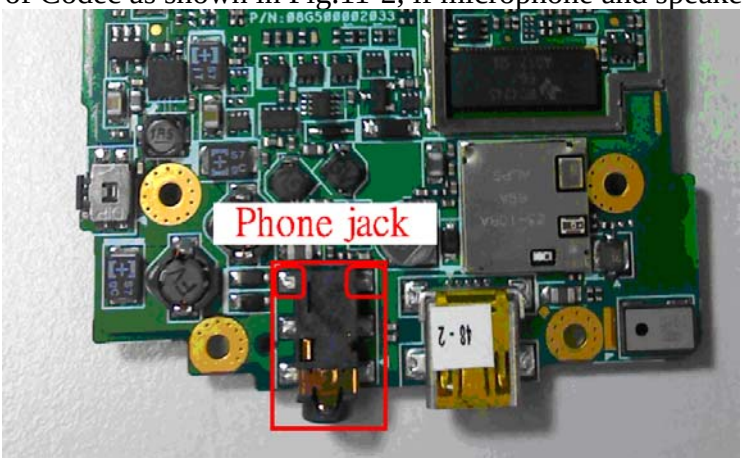
1. Inspect SIM card connector as shown in Pig.10, if SIM card can not be detected.
2. Inspect power domain of SIM card as shown in Pig.10, if SIM card can not work.(CON6.1)
3. Inspect unlock SIM card program, if SIM card can not be detected.



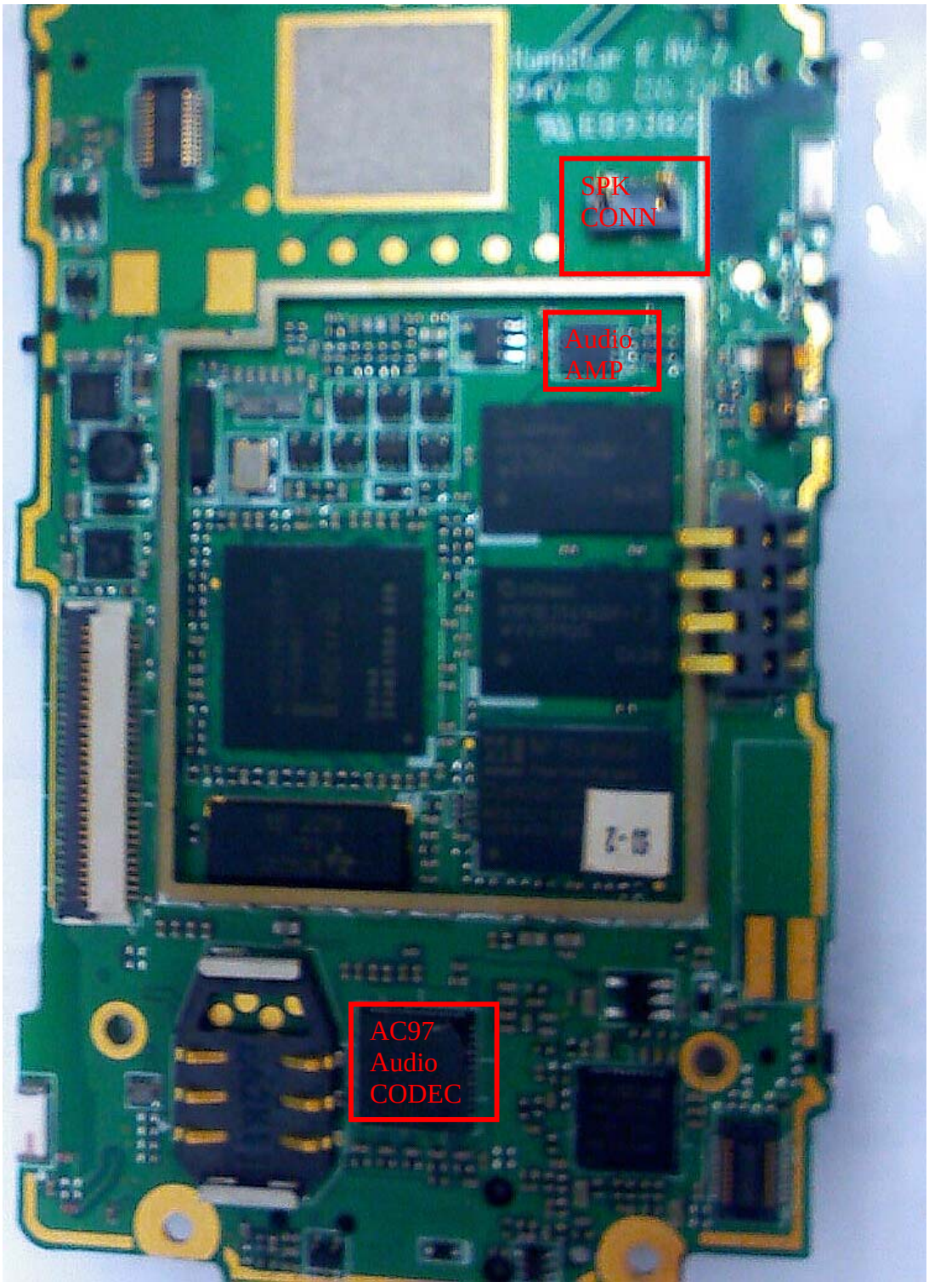

Pig.10 SIM card connector is located in P535 bottom side.

## 25.9 Audio problem:

1. Inspect speaker, receiver and handset connectors, if the sound can not work.
2. Inspect handset detect pin (low level) as shown in Pig.11-1, if the sound of speaker or receiver can not work.
3. Inspect audio amplify chip as shown in Pig.11-2, if handset include sound and record can not be work.
4. Inspect power domain of Codec as shown in Pig.11-2, if microphone and speaker can not be work.




Pig.11-1 Headset detect pin signs in red box.

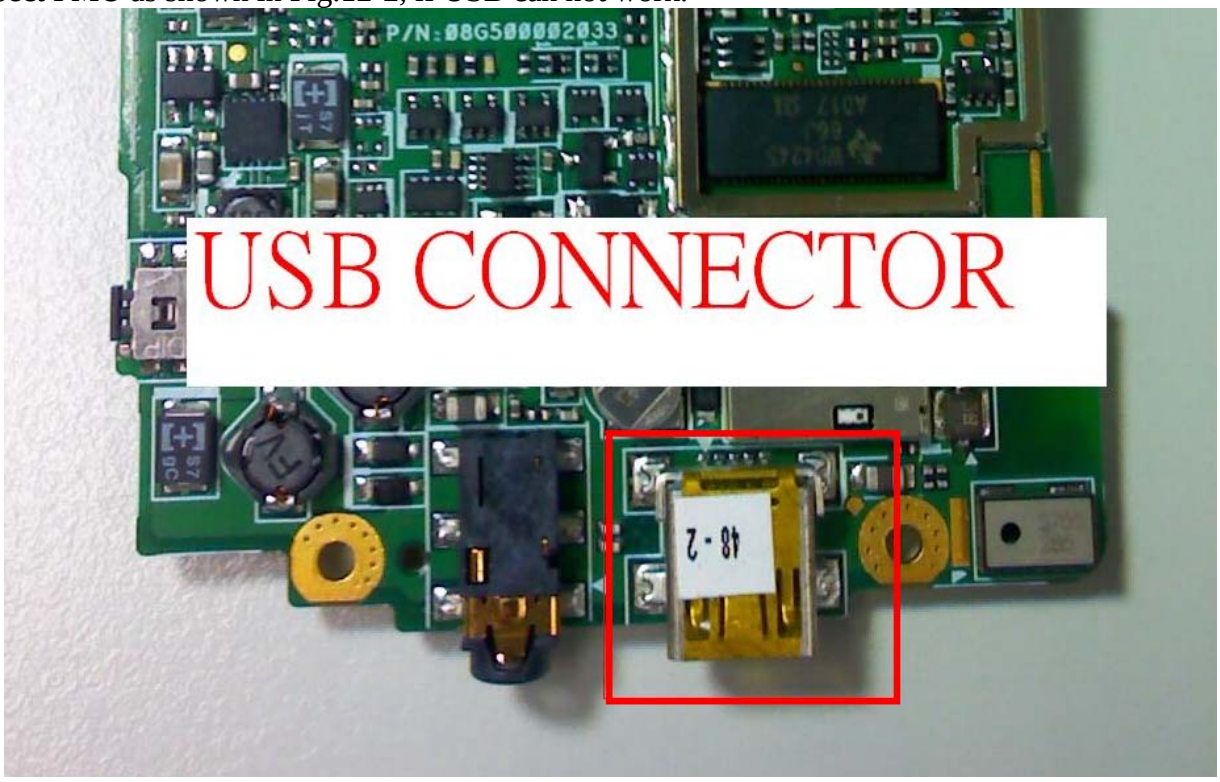



Pig.11-2 Codec and audio amplify are located in P535 bottom side.

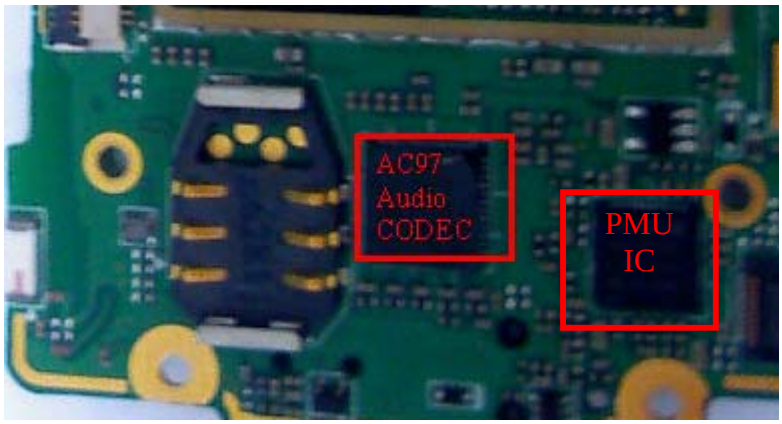
## 25.10 USB problem:

1. Inspect USB connector as shown in Pig.12-1. , if USB can not charge or can not connect to PC using Active sync.

2. Inspect PMU as shown in Pig.12-2, if USB can not work.



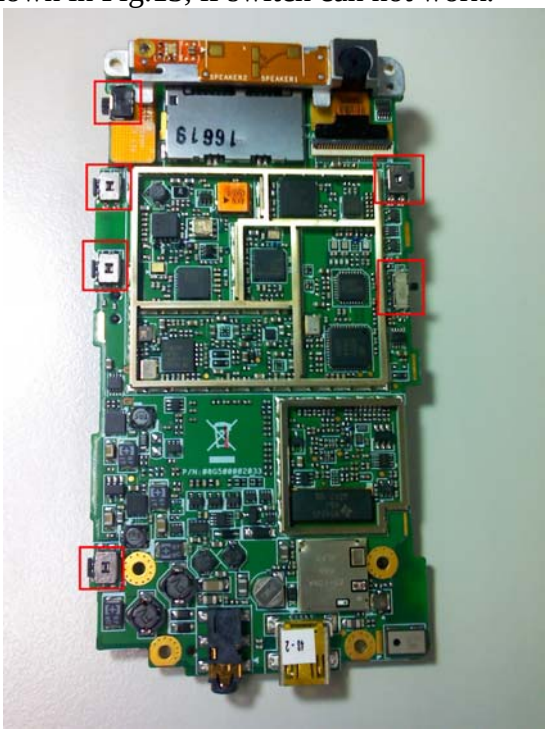

Pig.12-1 pin define of USB connector sign in P535 top side.




Pig.12-2 PMU is located in P735bottom side.

## 25.11 Switch connector problem:

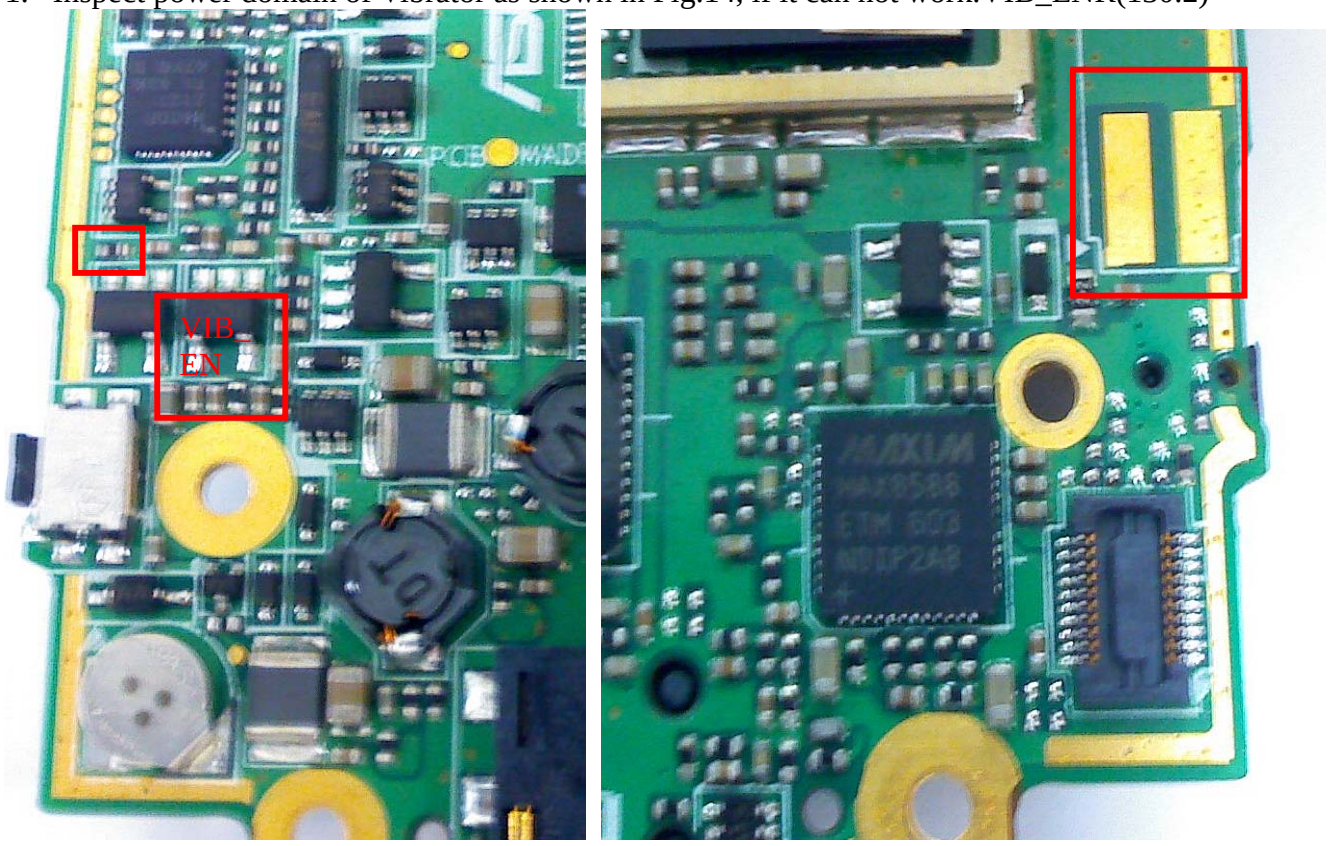
1. Inspect switch connector as shown in Pig.13, if switch can not work.



Pig.13 Switches are located in P535 top side.

## 25.12 Vibrator problem:

1. Inspect power domain of Vibrator as shown in Pig.14, if it can not work.VIB_ENR(130.2)




Pig.14 Vibrator connector is located in P535 bottom side.